ST NEWS
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I/O Board

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Randy Constan
Elfin Magic Software
CompuServe
ID 73637,317

U-PRINT TO SUPRA

A number of **Antic** readers responded to the February, 1987 I/O Board and 8-bit New Products mentions of the U-Print printer interface from Digital Devices, Inc. There doesn't seem to be a Digital Devices, Inc. anymore. Their number has been disconnected and there's no referral.

However, we have learned that Supra Corp. now owns the rights to the U-Print. Although they have not yet marketed it, they will repair individual units for $20. Supra is at 1133 Commercial Way, Albany, OR 97321. (503) 967-9075.—ANTIC ED

SYNFILE+ BUG

I set up a short program using SynFile+ for accounts receivable on my Atari 800. To conserve memory, I used only the DATE field as an index. After booting SynFile+, I tried loading my file. Time after time I got an error in either the .TBL, .DO1 or .IDX.

When I called Broderbund, their patient, helpful tech support people informed me of a little-known bug in the DATE field. If it's the only field used, it should be designated as a TEXT field, not a DATE field.

Mike Collins
New Lenox, IL

LOSING FACE

My compliments on your article about WAACE (**Antic**, February 1987). However, one small error crept in. FACE (Frederick Atari Computer Enthusiasts) is located in Frederick, *Maryland*—not Virginia, as stated in the article.

Mike Kerwin
President, FACE

LE MENU

Is there any way for me to translate the DUP.SYS menu and everything that goes with it into French?

Clement Carbonneau
Quebec, Canada

With a little effort, yes. You'll need a sector editing program that can read and write directly to disk. You can use Sherlock 1050 if you own an Atari 1050 disk drive, or Disk Scanner for other drives. Either program is $19.95 from The Catalog.

Make a disk with only DOS on it and locate the sectors containing the text that appears on the screen. Replace the English words with the French equivalents, being sure to take up the same number of characters.—ANTIC ED

Help!

CASTLE REPLAY

When you try to replay *Castle* (**Antic**, October 1986) a second time, two of the parallelograms are drawn incorrectly and an Error 141 occurs. This problem can be corrected by adding the following line:

```
235 PA=0
```

Rose Mary Goleeke
Columbus, OH

QUATRO

If your *Quatro* game (February 1987) has a skewed playing screen and your joystick doesn't position the playing tiles properly, insert these lines:

```
15 POKE 559,0
90 POKE 539,34:RESTORE
```

Remember to SAVE a copy of the corrected program before you RUN it.

Help!

ELECTRIC CHARLIE!

I have a problem with *Electric Charlie!* from the February, 1987 issue. When I enter a program with an error in it and then engage Charlie!, I receive an unknown error message with a code of zero and the correct line number. However, it works perfectly when I have a TRAP statement in my program. My computer is an 800XL upgraded to 256K. What is wrong?

Bill Zink

A TRAP statement is required somewhere in your program for Charlie! to do his thing. Our accompanying article should have specified this more clearly.

—ANTIC ED

WP COLUMNS

Your chart in the February, 1987 article *Word Processors: 7 for the 8-bit* shows that LJK's Letter Perfect has a maximum file space of 64.1K on the 130XE. However, when I called LJK, they said there is no special version of Letter Perfect, nor do they plan to create one. What did you mean in your chart?

Dan Hite
La Palma, CA

In the row labeled "Extra XE File Size," the entries "Uses RAMdisk" and "64.1K" each should have been moved one column to the left. That is, First XLEnt, not PaperClip, uses the RAMdisk. PaperClip, not Letter Perfect, has that 64.1K maximum file size.—ANTIC ED

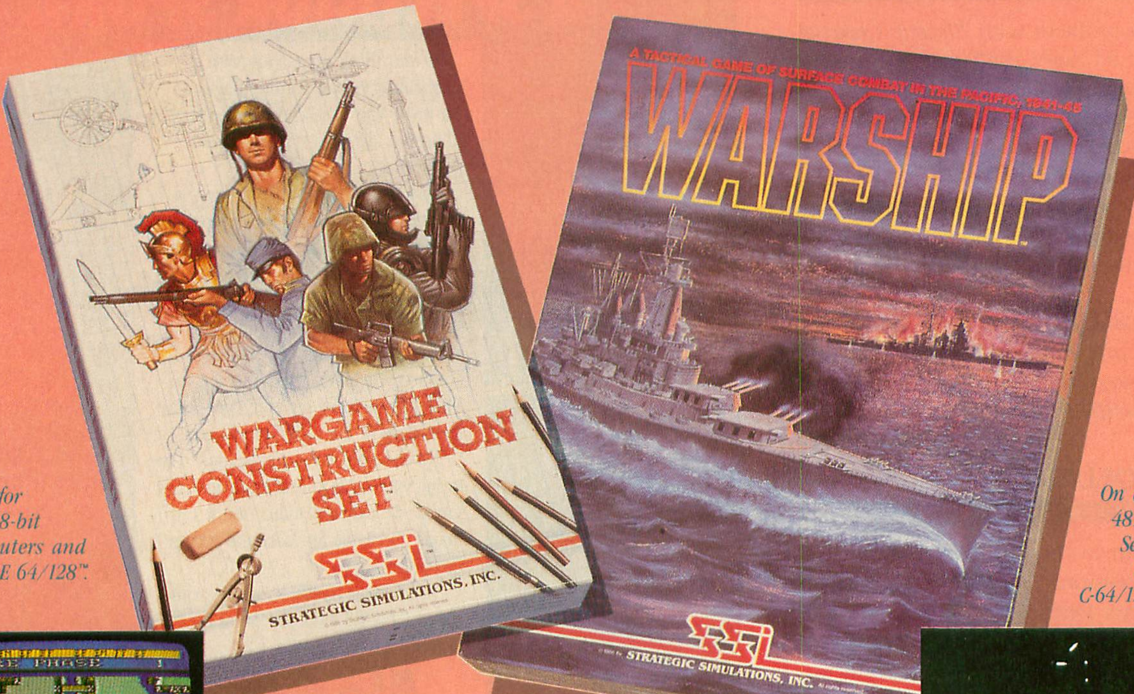
TODAY'S ATARI

A couple of wrong years somehow got into *Today's Atari Corp.* (March 1986). The Jack Tramiel team took over Atari in June 1984 and held their first press conference in November 1984.

***Antic** welcomes your feedback, but we regret that the large volume of mail makes it impossible for the Editors to reply to everyone. Although we do respond to as much reader correspondence as time permits, our highest priority must be to publish I/O answers to questions that are meaningful to a substantial number of readers.*

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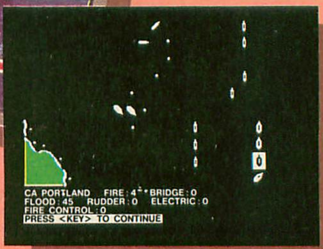
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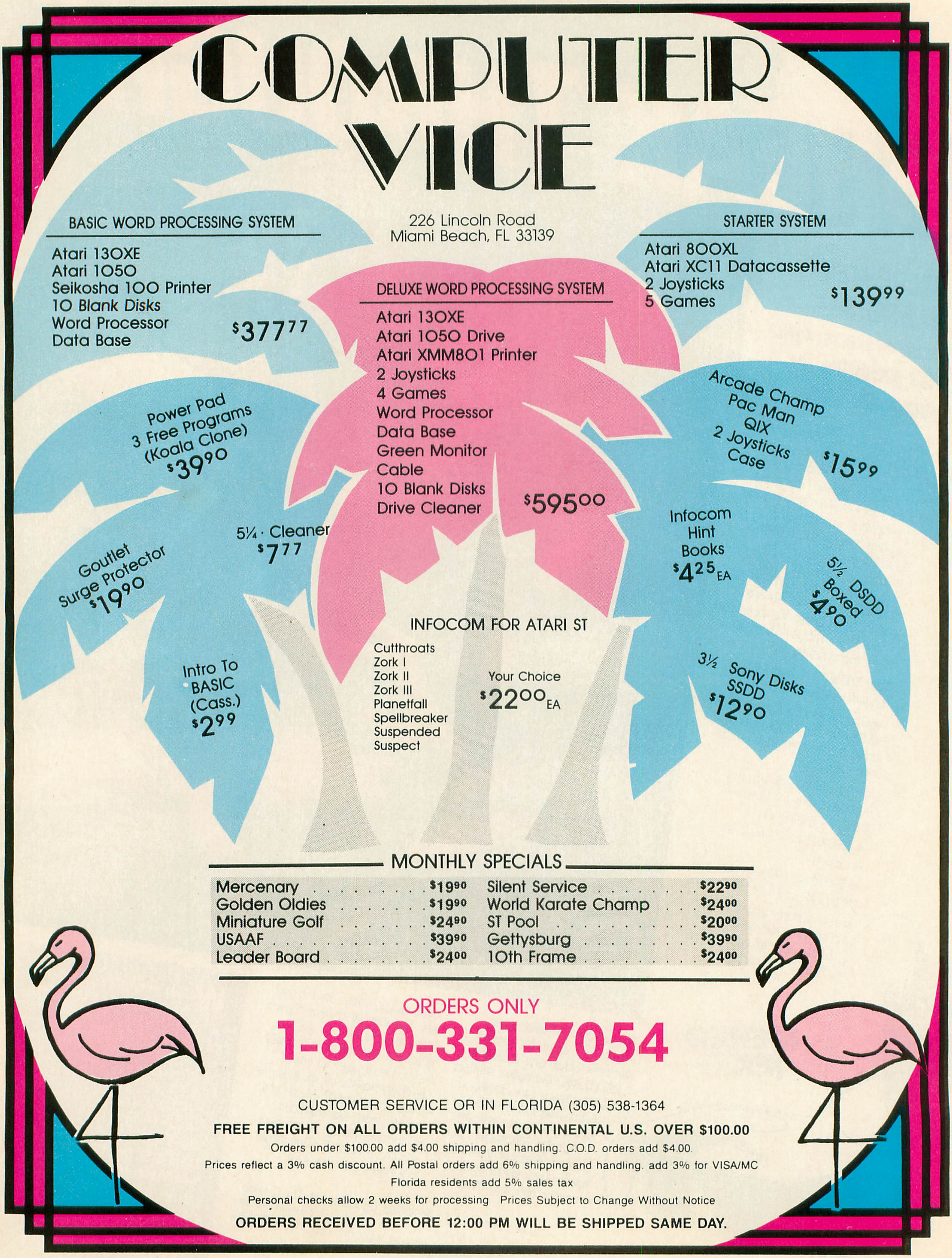
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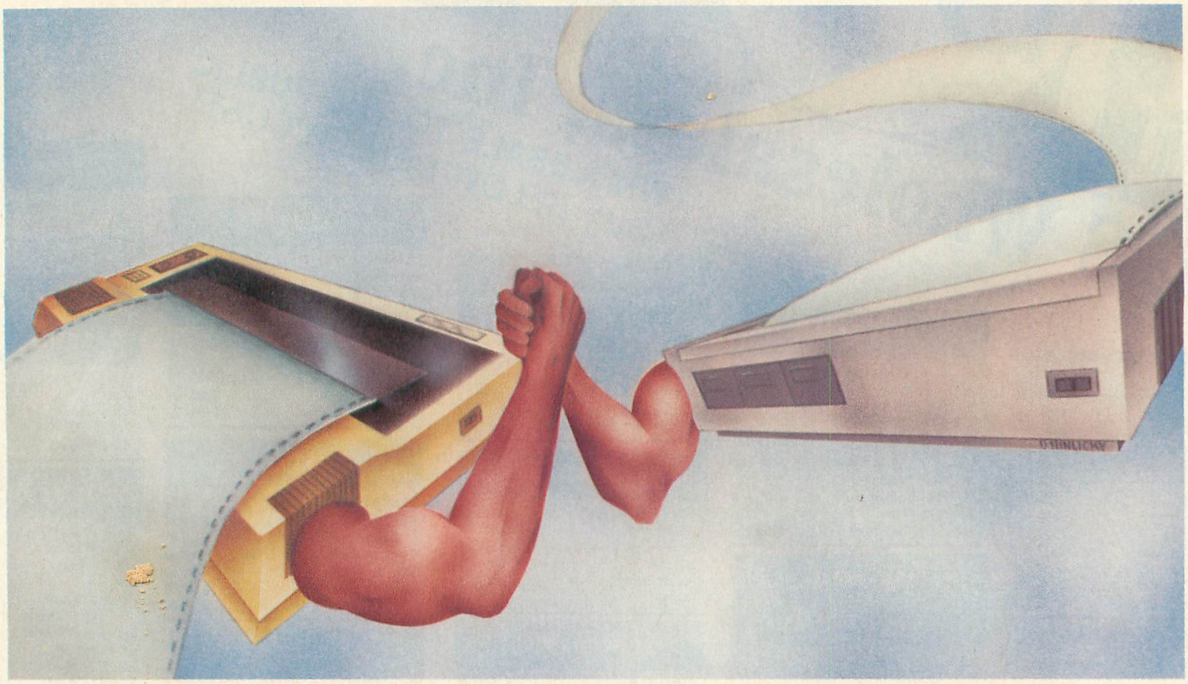
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A layout utility that lets you plan an 8½" × 11" page on your screen and then print it. Mix text, graphics and Typesetter fonts for fantastic two-column newsletters. Two text modes; 40 column allows any Atari character set, 80 column puts twice as much information on the same page. Page Designer works with other Printware Series software. 48K disk

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A collection of XLEnt creative utilities that let you build a library of high resolution icons, including converted Print Shop™ icons. Create up to four icons at once, and use the only 16 × 16 character set and text editors available for your Atari. Control the height and width of characters to get 32 different character sizes. Print up to 99 graphic labels with the special label printer. 48K disk

1st XLEnt Word Processor $29.95 By Castell

A fully featured, friendly and fast word processor. 1st XLEnt Word Processor uses a joystick and icon interface, has toggle between full-screen windows, and a very readable 80-column print preview to see what your document will look like. According to Antic Magazine's January '87 review, 1st Word is, "As good or better than any other word processor you'll find for the 8-bit Atari". 48K disk

Print Shop™ is a trademark of the Broderbund Company

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Antic Awards

1987 Atarian Achievements

Second Annual

BY NAT FRIEDLAND, ANTIC EDITOR

The first awards ever given for outstanding contributions to the Atari users community were featured in our Fourth Anniversary Issue last May. The Antic Awards proved so popular that we are now planning to make them an annual event.

Because the concept of these unique Atarian awards continues to evolve, don't expect to see the exact same categories each year. The highest priority of **Antic**'s editors when judging for these awards is to recognize the year's most significant accomplishments in the Atari world. Specific wording of an award is based on the actual accomplishment, not on some pre-defined category such as "Best Word Processor of the Year."

A basic decision we came to when planning these second Antic Awards is that no award-winner will be eligible to repeat for a second consecutive year. Our reasoning for this restriction goes as follows:

The universe of companies and individual professionals supporting the Atari computers is still comparatively small. Within this universe is a handful of truly outstanding producers who could normally be expected to win the major awards just about every year—thus limiting the rewards of recognition for other deserving but smaller-scale Atarian professionals. (However, **Antic** reserves the right to reconsider the no-repeat rule in future years, if a change seems appropriate.)

Certainly, most of last year's award-winners have had another great 12 months. Batteries Included's newest generation of hits include DEGAS Elite (see Programmer of the Year Award), Thunder!, I*S Talk, Isgur Portfolio and Time Link. Microprose broadened its product line with Conflict in Vietnam and Crusade in Europe while releasing a powerful ST version of Silent Service.

As for the Atari Corp. itself, a separate story elsewhere in this issue reports details of the advanced new line of computers and other hardware being introduced by Atari this year. Atari also became a publicly held company with its successful $50 million stock issue. And that stock price has more than doubled as business analysts increasingly take Atari seriously as a major force in the computer market.

All in all, the past 12 months were a highly satisfying period for the Atarian community. **Antic** is proud to have shared in this impressive growth. In mid-January, Antic Publishing, Inc. moved into an entire three-floor building with three times as much space as our previous quarters. The company now has some 55 employees and is launching a new publication. **Antic**, **START** and now Model Shopper for the entire spectrum of model - builders. This is quite an expansion for a company that began five years ago on the kitchen table of former NASA programmer James Capparell.

Anyhow, here are the 1987 Antic Awards representing this magazine's judgement of the most significant Atari developments during the past 12 months. See you again next year for our Sixth Anniversary Awards Issue.

Programmer of the year



TOM HUDSON

Tom Hudson is the author of **DEGAS Elite**—the popular choice for Program of the Year —and the earlier **DEGAS** for Batteries Included, plus **CAD-3D** for The Catalog. As more than one reviewer has put it—this spectacular graphic arts software is all the reason people might need for buying an ST computer.

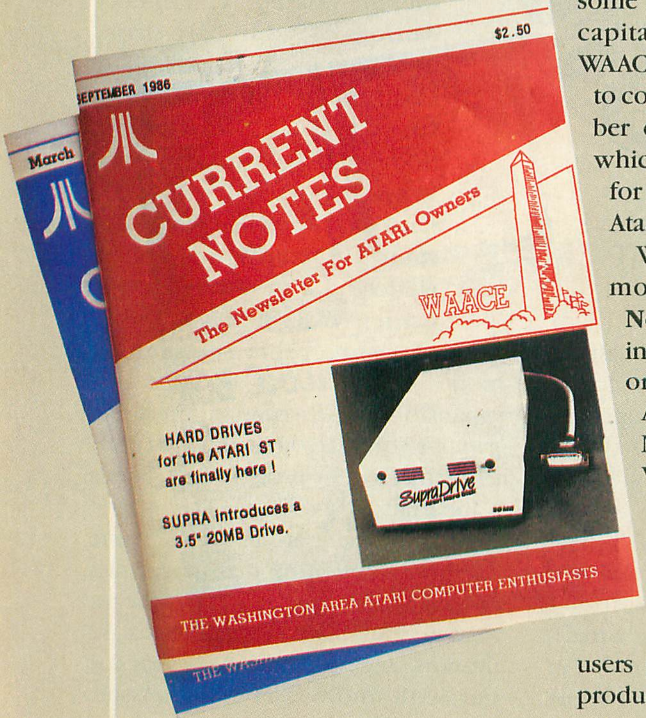
Yet Hudson, a friendly 27-year-old Missourian, still finds time to write about advanced programming topics in **START** Magazine and to help users of his software on CompuServe's SIG*Atari. Tom Hudson's addictive programs have given state-of-the-art computer graphics power to thousands of users who previously could only dream about taking control of such a high level of creative artistic techniques.

Outstanding users group

WAACE

As **Antic** explained in a February 1987 feature story, WAACE (Washington Area Atari Computer Enthusiasts) is a pioneering regional federation of nine Atari users groups serving some 1,500 members in the nation's capital, Virginia and Maryland. WAACE is the vehicle for these clubs to coordinate their efforts in a number of major regional activities—which serve as an important model for other area-wide affiliations of Atari groups.

WAACE publishes an ambitious monthly magazine, **Current Notes**, that is sold commercially in local stores. WAACE has also organized successful regional Atari festivals since 1985. NOVATARI, the largest club in WAACE, operates an area-wide bulletin board, ARMUDIC, that largely pays for itself by charging small subscription fees to all users. WAACE has shown the way for local users groups to band together and produce large-scale results.



ICD MULTI I/O BOARD



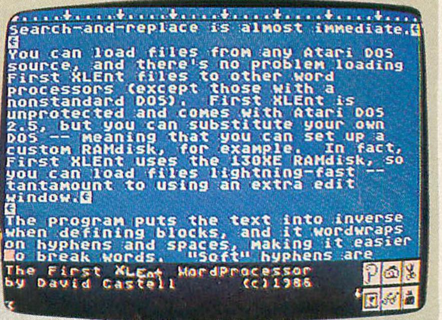
ICD's powerful line of hardware enhancements turbocharges 8-bit Ataris right into the forefront of today's computing capabilities. The affordable **Multi I/O Board** carries as much as one megabyte of lightning-fast RAMdisk memory that can be retained even when the computer is turned off. The Multi I/O also has a parallel port for printers, a serial port for modems and a SASI/SCSI interface that can connect virtually any standard hard disk to the 8-bit Atari. Promised soon is an 80-column screen display unit that attaches to the Multi I/O.

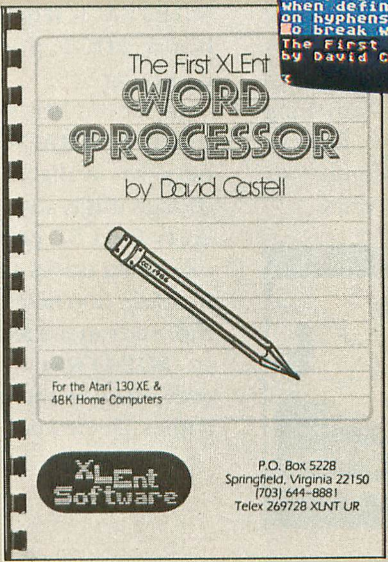
Other valuable products from ICD include the **P:R: Connection**, a long-needed replacement for the discontinued Atari 850 interface, and the sophisticated **SpartaDOS** operating software that uses the full power of the Multi I/O RAMdisks.

FIRST XLENT WORD PROCESSOR

The **First XLEnt Word Processor** was reviewed in the January 1987 **Antic** as one of the best available for the 8-bit Atari—offering numerous unique and useful features. This is perhaps the biggest breakthrough product yet from XLEnt Software, a feisty little company from Springfield, Virginia that built up an impressive line of affordably-priced software for both the Atari 8-bit and ST.

Until now, XLEnt has been best known for its useful series of graphics printing utilities, including **Megafont** and **Typesetter** in various versions for the both the 8-bit and the ST. Now, with First XLEnt Word Processor, XLEnt Software stakes out a claim at the leading edge of Atari software development.





Antic Awards

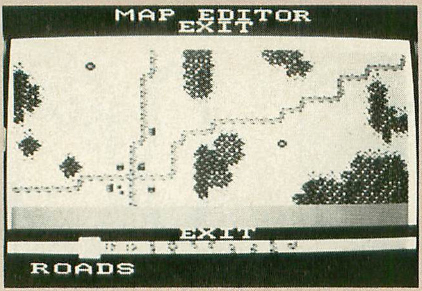
Outstanding products

1987 ATARIAN SECOND ANNUAL ACHIEVEMENTS

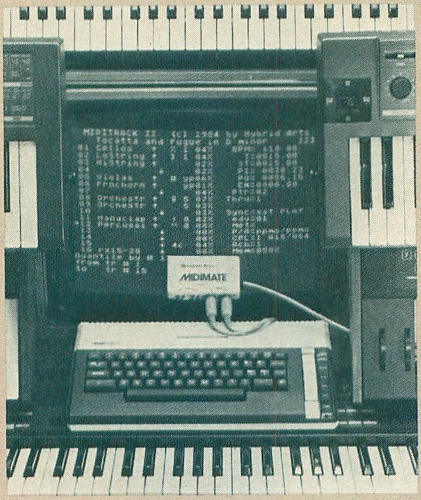
SSI—WARGAME CONSTRUCTION SET

The premier developer of computer wargames, Strategic Simulations, Inc. has consistently (like 1986 award-winner Infocom) released Atari 8-bit versions of all its major titles and is starting to release ST titles too. Hardly a month goes by when **Antic** doesn't review a new strategy wargame from SSI. Some of the company's recent best-sellers are **Nam, Gettysburg** and **Warship.**

Now, for many SSI fans, **Wargame Construction Set** is a dream come true. This software enables wargamers to design their own complete games from the battleground up—anything from sword-and-sorcery fantasy through historic tactical combat or science fiction interspace wars.



HYBRID ARTS—MIDITRACK



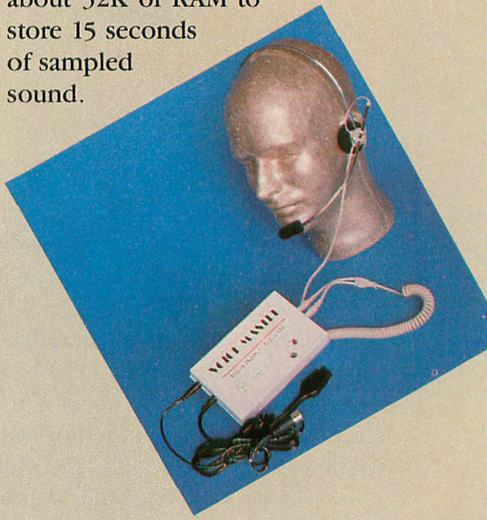
Back in the June 1985 **Antic**, we reviewed a brand-new professional music product called **MIDITRACK II** that enabled the 8-bit Atari to emulate a real-time digital 16-track recording studio. When we asked Hybrid Arts why they selected Atari over then-more-popular computers to run their MIDI system, they explained that only the Atari was rugged enough to survive a typical road tour. It could well be possible that the success of MIDITRACK II helped Atari decide to build MIDI ports into the ST computer.

In December 1986, our reviewer called **EZ-TRACK ST** "the best sequencer available for the ST." Although this is admittedly Hybrid Arts' entry-level ST product, it boasts 20 recording tracks and a storage capacity of 63,000 notes on a 1040ST. Even more advanced features are provided in **MIDITRACK ST**, which was previewed at the January 1987 Consumer Electronics Show.

COVOX—VOICE MASTER

The **Covox Voice Master** is a fascinatingly inventive hardware/software system that digitally records your own voice on the 8-bit Atari for computerized manipulation and playback. It comes with sample programs like a voice-recognizing blackjack game and the Voice Harp Composer that provides powerful editing of any music you can sing, hum, or whistle into the Covox microphone.

Introduced by Covox at the January 1987 Consumer Electronics Show was an ST version of the Voice Master, which should provide additional impressive uses, thanks to the ST's bigger memory. Due to the memory-intensive nature of digital sound sampling, the 8-bit Voice Master needs about 32K of RAM to store 15 seconds of sampled sound.



Outstanding products

BECKEMEYER— MT C-SHELL

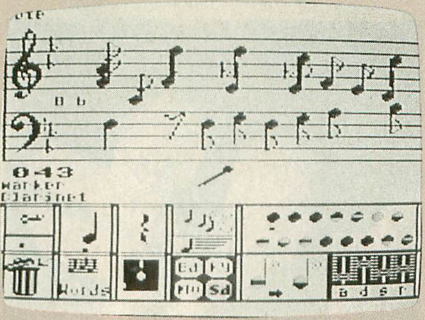
Beckemeyer Development tools of Oakland, California is a pioneering specialist in avant-garde ST program developer's environments. It will take some time before the full impact of mainframe-power software like **MT C-Shell** is absorbed into the marketplace. MT C-Shell supports multi-tasking for multi-users, electronic mail and print spooling. It is a Unix-like system that also runs the ST's standard TOS software.

MICHTRON

MichTron is being given an Antic Award in recognition of the breadth and scope of its entire ST software line. Michtron was one of the very first developers to start releasing ST programs, and its product library has already grown to more than 40 titles. MichTron ST software is available in just about every category you could ask for: entertainment, productivity, utilities, telecommunications, business, graphics, printing, word processing. If you own an Atari ST computer, MichTron has plenty of good software for you.



ACTIVISION— MUSIC STUDIO



Activision's **Music Studio** is an outstanding example of how to bring out software simultaneously for the Atari 8-bit and ST computers. Except for MIDI capability, virtually all the important features of this easy-to-use music composition program were packed into the XL/XE version as well as bigger-memory ST. Our September 1986 review called Music Studio "a fine addition to the growing list of Atari music programs for home use."

Activision also continued to bring out software for the Atari even during the period when other major publishers did not. **Hacker** for the 8-bit and ST, and the ST-only **Hacker II** are among Activision's most memorable recent graphic adventure titles.

ABACUS

Abacus is a leading ST software publisher, with titles like the **DataTrieve** filing program and the **TextPro** word processor. However, the company has earned an Antic Award for an even more unique contribution to Atarians. Abacus is the number one publisher of reference books for ST programmers.

The first Abacus ST book was available within a few weeks of the computer's opening shipments. By now, with over a dozen volumes already in print, the Abacus ST bookshelf is an invaluable source for all levels of ST programmers. **GEM Programmer's Reference** and **ST Internals** are just two of the Abacus titles regularly relied on by this magazine's technical staff.



Antic Awards

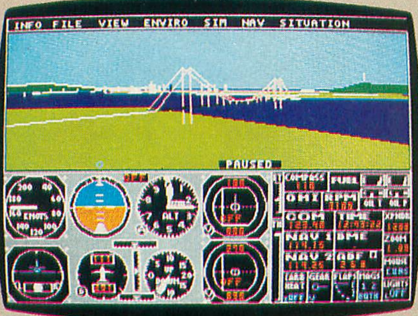
Outstanding products



SUBLOGIC—ST FLIGHT SIMULATOR II

Flight Simulator II has been a number one best-seller on just about every make of computer, *including* (since 1984) the 8-bit Atari. But when the ST version was reviewed in the January 1987 issue, we found that this hit program has taken off into an entire new realm of satisfaction.

The ST edition of Flight Simulator



II offers more features than many professional pilot training units. The scope of the scenery and the precise flight maneuvering make Sublogic's latest version a superb example of how to enhance existing software to take advantage of the ST's power.

LC TECHNOLOGIES—STEREOTEK 3-D GLASSES



Previewing at computer shows since the autumn of 1986, these liquid crystal shutter (LCS) **Stereotek 3-D Glasses** have consistently proven to be a sure-fire crowd attraction. The LC Technologies glasses plug into the ST cartridge port to display animated three-dimensional images in color or monochrome, using DEGAS Elite or CAD-3D software.

Using PI-cell technology developed by Tektronix, the LC Technologies glasses alternately open and shut the left and right lenses in synchronization with the ST video image refresh—60-70 times per second. The Stereotek 3-D effect is a spectacularly innovative use of ST graphics power.

TIMEWORKS

The first three ST releases from Timeworks are so new that our review is still in process. But we have already used these integrated business/productivity programs enough to be positive they are a real breakthrough of affordable power and convenience in the ST market.

Timeworks' **Data Manager** database includes the best ST business graphing program we have seen, plus a full-scale report writer and a convenient label maker. The **SwiftCalc** spreadsheet can also generate the same fine business graphs and has a built-in sideways printing utility. The **Word Writer** word processor has an outline processor, a spell checker and realistic onscreen display of special formats.



Antic Awards

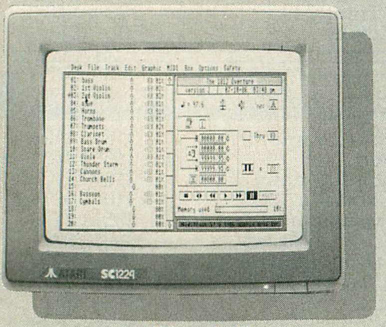
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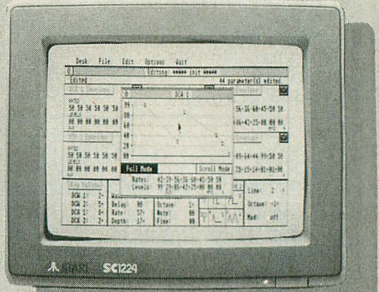
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MidiTrack ST

MIDI Recorders: With several different professional quality systems to choose from, Hybrid Arts has a MIDI Recorder for every musician and any budget from hobbist to broadcast professional. Starting with **EZ-Track**, the 20 track polyphonic recorder with editing features like quantizing and instant transpose. **MidiTrack ST** has a full range of advanced editing features including an auto patch injection system and FSK, Roland and TTL sync to tape for studio use. And **MidiTrack Professional** comes complete with our **SMPTEMate** box. SMPTE specs include SMPTE read/write, drop frame, non drop frame, 24, 25, or 30 fps, jam sync, both reading and writing of user bit data. Resolution is at the bit level.

Patch Librarians: A complete line of products are available for sound patch libraries. **Genpatch** is designed to work with all MIDI keyboards regardless of manufacturer. **DX-Android**, the highly acclaimed editor/librarian program for the Yamaha DX-7 and TX series. This was the first product of its kind to offer both graphic and numeric editing along with the famous android functions that create new musically useful sounds instantaneously. **CZ-Android** is the CASIO verison that works with all of the CZ keyboard series including the new CZ-1 and CZ-230S.



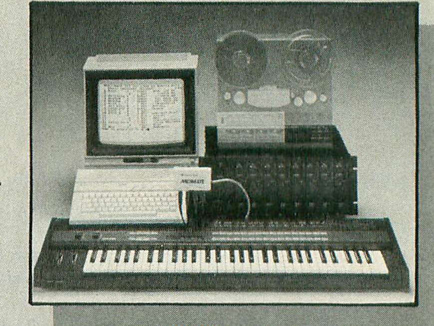
CZ-Android



ADAP SoundRack

Sampling and SMPTE hardware: The revolutionary **ADAP SoundRack** (Analog to Digital Audio Processor) takes full advantage of the speed and memory of the ATARI 1040ST. The "ADAP" is a hardware/software peripheral for the ST that allows music and broadcast professionals to sample 20 seconds at 44.1 khz with 16 bit resolution. Full MIDI compatability is implemented. System is upgradeable to direct to hard disk stereo digital mastering and SMPTE interlock.

The MidiMate software series for the ATARI 8 bit computers: For the musician on a limited budget but still needing professional quality, Hybrid Arts has a complete line of studio-tested software. **MidiTrack III** is a 16 track MIDI recorder, synchronizer and remote controller for the ATARI130XE. Standard features include 10,500 note capacity, looping, copy and paste editing, programmable tempo, track combining and uncombining. **MMS** is a sophisticated monophonic single step entry sequencer. The operator can enter musical notes from either the computer keyboard or the MIDI synth keyboard. 99 tracks are available to work with. **GenPatch** is a generic patch librarian system for all MIDI keyboards. **DX-Editor** is a numeric editor and librarian for the YAMAHA DX-7 and TX. **Oasis** is our low cost Visual Editing System for the Ensoniq Mirage keyboard sampler. Features include full MASOS implementation, 8 levels of magnification, redrawing of wave forms with high resolution graphics. **MidiCom** is a MIDI telecommunications program designed for easy use.


MidiTrack III

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CIRCLE 015 ON READER SERVICE CARD

BY JON BELL, ST RESOURCE EDITOR

Atari's New Computers

Triple-header at '87 Winter CES

Atari kicked off the new year by introducing this high-powered new hardware line-up at the January 1987 Consumer Electronics Show in Las Vegas:

- The Mega ST series—detached-keyboard computers with a choice of 1Mb, 2Mb and 4Mb memory, starting at about $995.
- A laser printer priced under $1,500, lowest cost in the market.
- A videogame system that can be upgraded to an 8-bit XE computer with an add-on keyboard and disk drive.
- The most affordable IBM PC compatible available—$699 with a high-resolution monochrome monitor, $499 with only a disk drive and 512K. All standard graphics formats and ports are built-in, so virtually no add-ons will be required.

"In 1987, we are declaring war on the computer business in the United States," said Atari president Sam Tramiel at the company's CES press conference. Atari Chairman Jack Tramiel added, "It seems that the customers want to buy the right product at the right price. 1986 was a fantastic year and 1987 will be much, much, much better."

(This article is based on information provided by Atari executives during the 1987 Winter CES. By the time you read this, certain features of these machines and their prices may have changed. Also, the new Atari hardware was announced for release in the second quarter of 1987. But in the volatile computer industry, product release dates—from any manufacturer—are often subject to delay. Finally, readers may rest assured that ***Antic*** *will not normally devote editorial pages to coverage of Atari's new IBM-compatible computer—such information may easily be found in many PC magazines. We write here about the Atari PC's introduction in some detail, simply because we believe that news concerning Atari's future is of general interest to our readers.*—ANTIC ED)



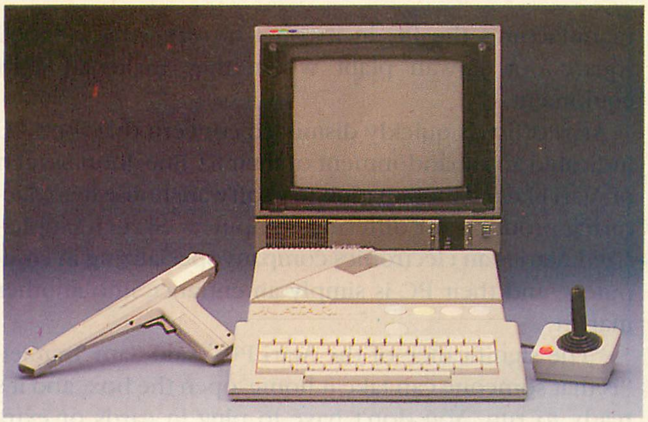
Rick Der

The new Atari Mega ST computer.

4MB MEGA ST

The new Mega STs are component systems resembling an IBM PC—but sleeker and less clunky-looking. A detached keyboard is connected by cable to a separate box housing the central processing unit (CPU) plus a built-in double-density 3-1/2 inch disk drive, a battery-powered real-time clock calendar and the long-awaited blitter chip for high-speed animation.

The new STs are designed as "open architecture" computers and use the new 1Mb RAM chips. Expansion devices such as add-on cards might be plugged into a peripheral box, which would then connect to the ST through the DMA port or bus expansion connector. In the future, such a box could easily handle dedicated chips, such as



The Atari XE game system, with add-on keyboard.

the new Motorola 68020 and the 68881 math co-processor, giving blinding speed to graphics processing, real-time animation and other memory-intensive, number-crunching functions.

A mouse port and joystick port are in the back of the ST keyboard unit, near the center. The keyboard itself is attached with a length of coiled cable, using standard phone jacks.

The usual ST ports (DMA, MIDI, etc.) are arranged in the back of the CPU box. The box also serves as a monitor platform. Atari's new 20-megabyte hard disk fits in the same "footprint" as the CPU and can be placed under the CPU, adding only another inch and a half to the "stack."

$1,500 LASER PRINTER

A second major announcement was the Atari ST Desktop Publishing System. An Atari ST "host" computer will serve as the front end for a laser printer "engine." You'll get near-typeset quality printing with 300 dots-per-inch resolution.

Conventional laser printers from other companies require hundreds of dollars of microprocessor and support electronics. But the ST's high-speed DMA port, coupled with the raw horsepower of the 68000 microprocessor, will let the ST drive the new laser printer via software containing any popular page description language such as Postscript, thereby lowering the printer's standalone price.

Atari stated they will sell a desktop publishing system featuring a 2Mb Mega ST and an Atari Laser Printer for less than $3,000. (The package is tentatively scheduled for release in late spring.) The printer will also be sold separately for under $1,500. For less than the price of a Macintosh Plus, you should be able to buy a Mega ST2, an Atari Laser Printer and the software to drive it.

VCS INTO XE

Videogames, which launched the old Atari Inc. into billion-dollar annual sales and then sent it spiraling almost into oblivion, have re-emerged at Tramiel's Atari Corp. That world-famous Atari warhorse, the 2600 videogame system, has been given a facelift and is now selling for under $50.

An interesting repackaging of Atari 8-bit computers masquerading as a videogame is the XE System, a small, squarish box with sharp angles and round pastel buttons (RESET, OPTION, etc.) which give it an unusual, almost art-deco appearance. According to Sam Tramiel, it is fully expandable with a plug-in keyboard and disk drive, turning it into a standard 8-bit XE computer.

The new 7800 game system, which James Morgan introduced in those last terrible months before the Tramiel takeover, is heralded as the next generation of videogame. It includes a copy of Pole Position and will retail for under $90. The 7800 features better-than-XE-quality graphics and sound, and will accept the new "Supergame" cartridges from companies such as Broderbund, Epyx and Electronic Arts. The first titles to be released include Karateka, Choplifter, Summer Games, 1-On-1 Basketball and Skyfox.

ATARI PC COMPATIBLE

The most surprising of Atari's new hardware announcements was the Atari IBM PC compatible. That's right—Atari jumped into the territory of Compaq, Leading Edge and Hyundai by announcing its own IBM PC-XT "clone"—to retail for an amazing $499. The new Atari PC features an 8088 microprocessor with a switchable clock speed of 4.77 MHz or 8MHz, and it will accept an 8087 numeric co-processor. The PC comes with 512K standard RAM, expandable to 640K, plus 256K of dedicated screen RAM, which makes the entire 512K of system RAM available to developers. Atari expects to use its PC as a second front-end computer for its laser printer and says the PC will run thousands of pieces of IBM software.

The $499 version of the Atari PC has a detachable keyboard and CPU only, while a $699 version also includes an "EGA monochrome" monitor with a 720×348 high-resolution display. Both computers come with built-in parallel, serial and SCSI hard-disk ports, mouse ports and mouse. One 5-1/4 inch 360K disk drive is built into the CPU box and two external drives can be plugged in. Atari will also market an expansion box accommodating up to five AT-sized add-on boards.

The Atari PC comes with unheard-of graphics support built-in—EGA (enhanced graphics adaptor), CGA (color graphics adaptor), Hercules and IBM monochrome. With an EGA color monitor, the PC will support 640×350 pixels resolution. Most EGA monitors retail for over a thousand dollars, however sources at Atari indicate they are working on an extremely low-priced EGA color monitor. You can also hook up a standard ST 3-1/2 inch disk drive and read and write IBM laptop disks, making the transferral of text files in that format an easy task. (Note: This does not mean you can run ST software on the Atari PC.)

The Atari PC will be bundled with the GEM Desktop software from Digital Research and several other applications. It is rumored that Microsoft Windows might be bundled with the PC and also be made available for the ST. Unlike many other compatibles on the market, Atari

continued on next page

manufactures the PC in its own factory—the 200,000 square-foot Taiwan plant where they make all Atari equipment.

Atari officials quickly dismissed concern that their PC indicated any abandonment of their ST line. John Skruch of Atari likened the situation to a software house manufacturing products for differing computers. Skruch emphasized Atari is an electronics company specializing in computers, and their PC is simply an entrance into another market.

"The significance of the Atari PC," said Sam Tramiel, "is that someone can take it home, open the box, and it's ready to run. You don't have to plug in cards or extra things; you have everything you need, right off the bat."





Top: A new addition to the MS/DOS univers—the Atari PC.
Bottom: The ST puts on a business suit—the Mega ST.

NOT THE END

Jack Tramiel has always claimed Atari will be a major contender in the personal computer marketplace. With solid ST sales and now a very competitive IBM clone (for those so inclined) Atari stands to make 1987 exponentially more interesting than their efforts in 1986. Computer marketing analysts, who previously ignored anything not stamped with three familiar letters or a bitten apple logo, have begun finally to sit up and notice Jack Tramiel's Atari efforts.

The analysts have had to abandon their original litany of ". . . But how financially stable is Atari?" With Tramiel's November stock offering giving Atari a quick $50 million shot in the arm, plus decent profits and no further Warner debt, the wags have had to look at something else—specifically, Atari's product line. And, horror of horrors to the nay-sayers, Atari's product line is selling.

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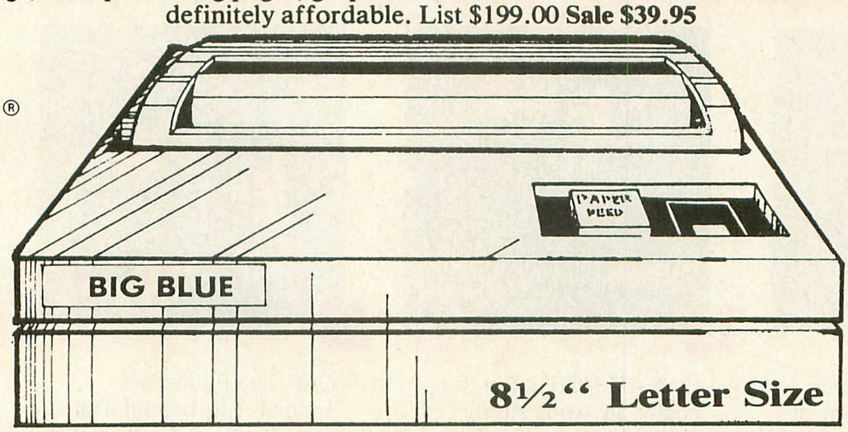
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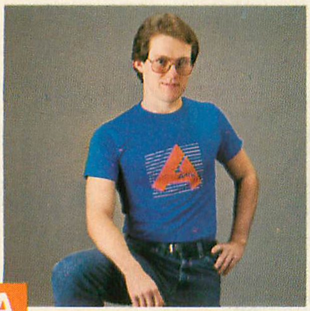
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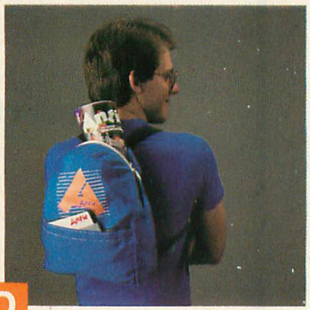
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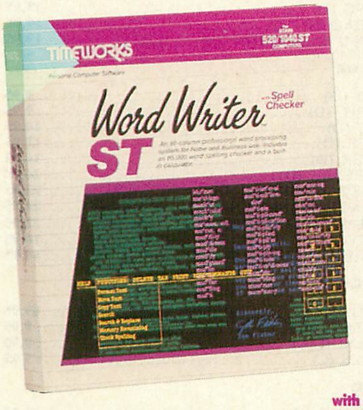
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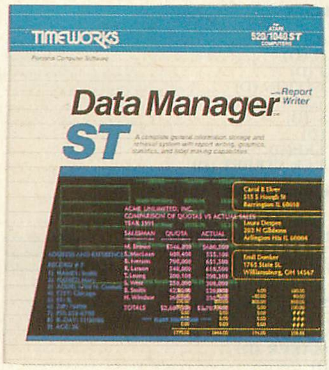
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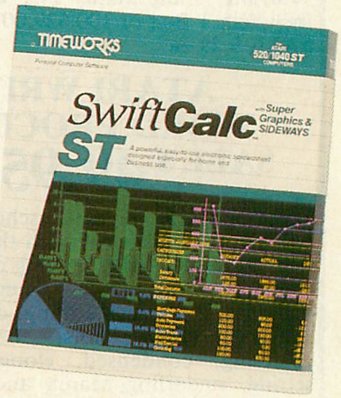
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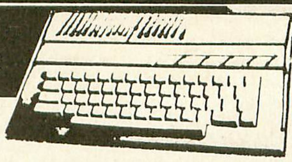
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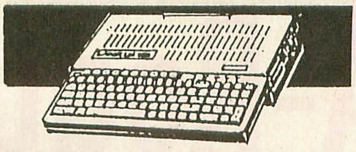
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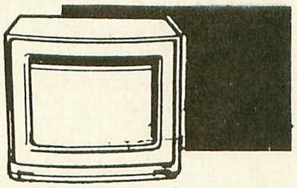
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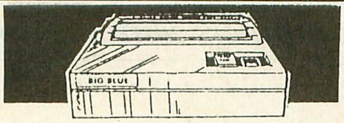
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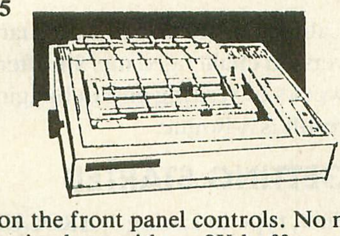
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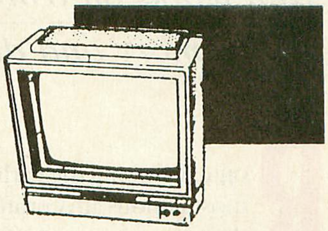
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A-Rogue

8-bit gets classic mainframe dungeon adventure

BY ROBERT JUNG

*As far as **Antic** knows, this is the first 8-bit Atari version of Rogue—one of the famed early graphic adventure games on mainframe computers. This BASIC program works on 8-bit Atari computers with minimum 48K memory and disk drive.*

Rogue is among the earliest and most famous adventure games developed on mainframe computers by anonymous programmers fooling around after official work hours. Rogue went beyond the all-text "Original Adventure" format and used simple character graphics to create an addictive fantasy role-playing dungeon treasure-hunt.

After I played Rogue on a mainframe at the University of Southern California, the idea of an Atari 8-bit version challenged me. So, after many weeks of writing and debugging, the result is A-Rogue.

GETTING STARTED

First, type in Listing 1, AROGUE.BAS, check it with TYPO II and SAVE a copy before you RUN it. This is the game file. Next, type in Listing 2, CHARMAKR.BAS, again checking it with TYPO II and SAVEing it. This program creates a redefined character set (AROGUE.CHR) for A-Rogue to use. Finally, RUN CHARMAKR.BAS to create AROGUE.CHR. Both AROGUE.BAS and AROGUE.CHR should be on the same disk.

Antic Disk owners: Copy AROGUE.BAS and AROGUE.CHR to another formatted disk before playing the game. The monthly disk is write-protected and won't let you save a game in progress.

PLAYING ROGUE

Your roguish mission is to go through the dungeon and find the Jewel of Taldra. Naturally, there's a whole horde of creepy monsters out to stop you. Worse, you also have cursed weapons and deadly potions to worry about—and make sure you don't starve to death.

But first you'll be prompted to type



the name of your own rogue, up to 20 characters long. Then you'll see "LOAD A GAME?" Since this is your opening game, press [N]. The first level of the dungeon will then be generated in a minute or so. You start the game with a handaxe, leather armor, two rations of food and a handful of spells. More equipment is in the dungeon for you to find.

You're represented by the small square on the map of the level, which is under a display with commands and the current dungeon level. You only see a small part of the dungeon at first, but you uncover more by exploring. The dungeon is made of hallways and rooms. One of the rooms contains a set of stairs down to the next level and you can't leave until you find it.

ROGUE COMMANDS

[Arrow Keys] move you through the dungeon. Sorry, your joystick won't work with this game. You only need to type the *first letter* of the following commands.

[I]nventory shows your status. A sample display would be: Health <15> 13; Food 2; Gold 54; Armor, Leather; Weapon, Handaxe; Health 1: Teleport 1; Fireball 2. Most of this information is self-explanatory. The number in brackets is your endurance (the maximum health you can have), and next to it is your actual health.

[R]est gives you one health point for each rest turn. Don't rest too long, or a monster might attack.

[E]at nourishes you with a ration of food.

[D]ownstairs brings you down to the next level. Be careful, after you descend, you can't go back up.

[C]ast Spell launches one of the magic spells in your inventory. (See below).

[S]ave your current game, using the name you gave. Games are saved in a file, ARSAVE, which A-Rogue will create if needed. Any earlier games are replaced and only one game can be saved on each A-Rogue disk.

[L]oad an earlier game. Once loaded, the file is deleted so you can't use it again. If there is no saved game on disk, the load will cancel.

[Q]uit stops the current game. If you want to play later, use [S]ave instead.

FIGHTING

No matter what you do, sooner or later a fight breaks out. Blow-by-blow descriptions appear at the bottom of the screen. At each combat turn, you'll see a fight prompt—[A]ttack the monster, [W]ithdraw (try to escape), or [C]ast a magic spell.

[H]ealth shows how much health you have at the moment. If this falls to zero, you die. The fight continues until someone dies, or you escape.

MAGIC

There are three kinds of spells in A-Rogue, and you can cast them any time you have one in your inventory. A Heal spell restores you to your maximum endurance level. A Teleport moves you from one part of the dungeon to another. A Fireball spell is best for fights: it automatically hits the monster—and *hurts*. You start with one of each spell, and you find more later.

There are also magic potions. Each color potion has different powers. You can't keep potions: you must either drink them immediately or they disappear. Approach them with caution, and remember what each color stands for. For example, if you find a green potion that heals, then other green potions also heal.

ARMING YOURSELF

If you find armor or a weapon, you must either take it *now*, or kiss it goodbye forever. If you take it, you lose your old item.

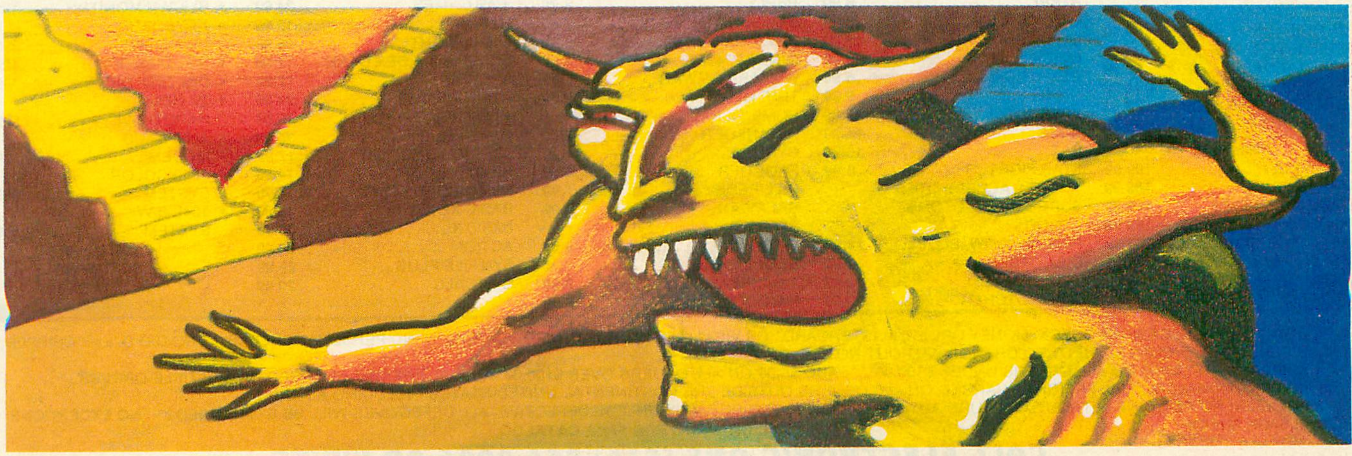
You'll find magic weapons in the lower levels. The only way to tell if a weapon is magic is to take it and then use [I]nventory to check. Magic weapons will have a +1 or +2 on the end. Sometimes the magic is evil, and a weapon is *cursed*—you can't hit a monster with it. The only way to get rid of it is to find another weapon.

FINISHING THE GAME

A game ends when you die in battle, starve, [Q]uit, or you find the Jewel of Taldra. In any case, you'll be asked "ANOTHER GAME?" Press [Y] to play again or [N] to stop playing.

Robert Jung currently studies computer science at the University of Southern California. He's also a sysop of the O-Mayer V bulletin board, (213) 732-0229, where A-Rogue is an online game.

Listing on page 80

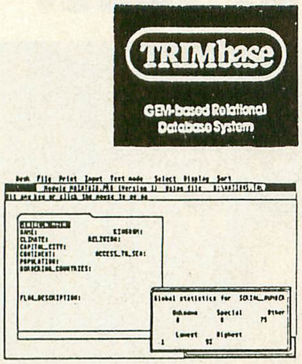


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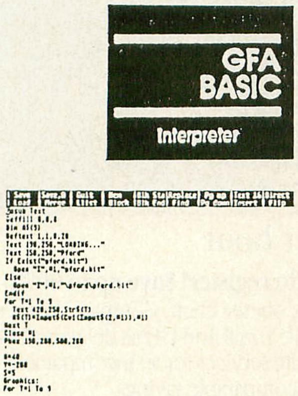
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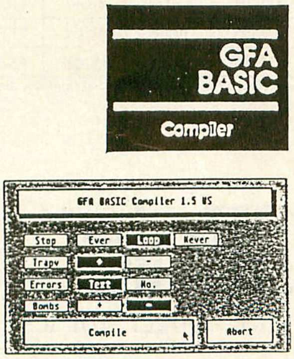
GFA BASIC resembles Modula-2 or Pascal code with the ability to accept parameters from the main program as well as using local variables. Also, various commands lets you handle GEM drop-down menus!

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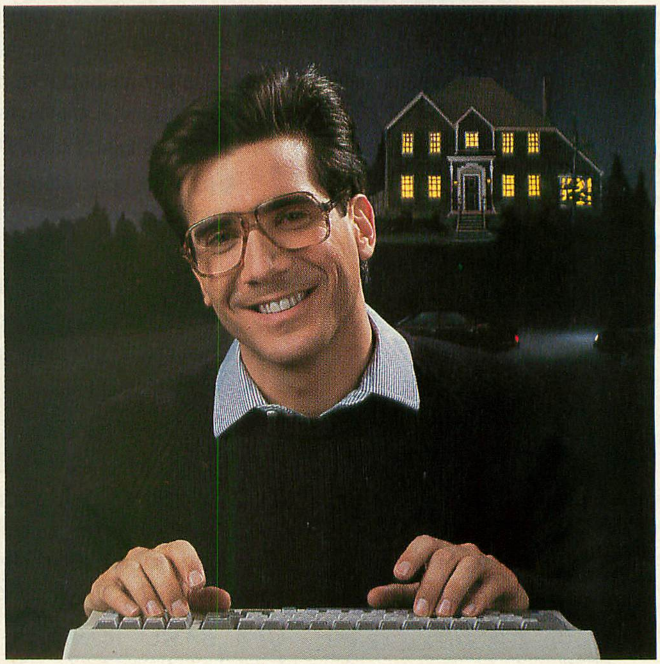
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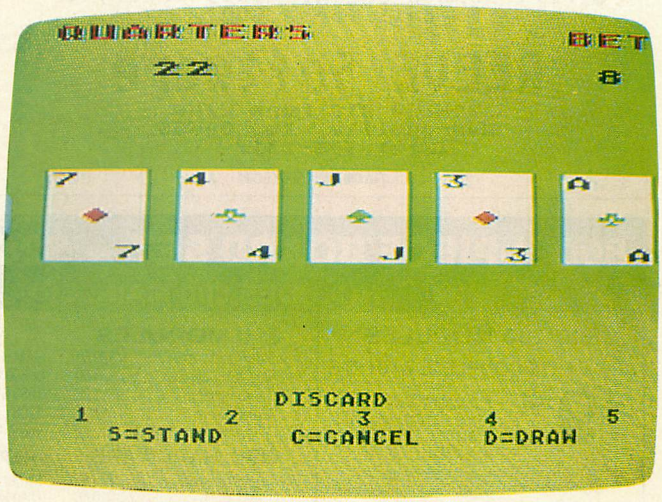
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BY JOE McMANUS

Poker Machine

Las Vegas on your Atari

Poker Machine turns your Atari into a flashy Las Vegas slot-type draw poker machine. You get the real feel of poker and you can win up to 50 times your bet, if your hand is good enough. This BASIC program works on all 8-bit Ataris with 48K memory and disk.



If you ever felt like trying your luck in a poker game but nobody else was interested in parting with their hard-earned dough, then you'll enjoy the Poker Machine. Try your luck with a make-believe stake to win or lose a few phantom dollars.

Type in Listing 1, POKER.BAS, and SAVE a copy before you RUN it. If you have trouble typing the special characters in lines 11, 19000 and 25070, don't type them in. Listing 2 will create them for you. Type in Listing 2, check it with TYPO II and SAVE a copy to disk. When RUN, Listing 2 creates these hard-to-type lines, and stores them in a disk file called D:LINES.LST.

To merge the two programs, type LOAD "D:POKER.BAS" and then ENTER "D:LINES.LST". Remember to SAVE the completed program before you RUN it.

PLAYING POKER

Press the [SPACEBAR] for the number of quarters you want to begin gambling with and then press [START].

A flashing prompt asks for your wager, which you enter by pressing the [SPACEBAR] once for each quarter you want to bet. You can bet as many as eight quarters on each hand. Press [D] for your cards to be dealt. If you're lucky enough to be dealt a pat hand—where you don't need to replace any cards—press [S] for Stand, and your winnings will be tallied. If you want to draw any cards, press keys [1] through [5] for the card or cards to discard. It's all right to throw them all away and try for a whole new hand.

If you mistakenly throw away a card you wanted to keep, press [C] for Cancel to restore the original hand. When you are done discarding press [D] to get a new deal of the cards.

Helpful onscreen prompts will aid you throughout the game. Winnings are based on the amount of your bet according to the following odds:

Pair of Aces	1 to 1
Two Pair	2 to 1

continued on next page

Three of a Kind	3 to 1
Straight	5 to 1
Flush	8 to 1
Full House	10 to 1
Four of a Kind	25 to 1
Straight Flush	50 to 1

With a starting stake of 20 quarters, I have won nearly 200 quarters. I hope this game will improve your poker playing skills and help you win many pots from your friends.

PROGRAM TAKE-APART

10-12	Variable declaration and initialization
800-852	Analyzes hand
900-920	Gives number values to face cards
950-970	Sorts hand from low to high
19000-19120	Puts M/L shuffling routine into Page 6
20040	Calls that routine
20540	Copies ROM character set into RAM, starting at location J
25090	Redefines character set
25110	Uses character set

Joe McManus, a recent computer science graduate and current programming job seeker, is a member of a top-40 band in Pennsylvania.

IF YOU'D ENJOY SEEING MORE ARTICLES LIKE THIS ONE, CIRCLE **204** ON THE READER SERVICE CARD.

Listing on page 77

BY DAVID PLOTKIN, ANTIC CONTRIBUTING EDITOR

New Owners Column

Lesson 14: Sound

This lesson concludes the beginners' 8-bit Atari BASIC programming series that started in the March 1986 issue. Next month, ***Antic*** *will introduce a new series that teaches Atari animated graphics and game design.*

If you play computer games, you know what kind of sounds your computer can make. Sound is an important way to hold the user's attention. Entirely silent games soon lose their appeal. While machine language is required for really complex soundmaking—such as you'd find in Music Studio (Activision) or Music Construction Set (Electronic Arts)—there's quite a bit you can do with Atari BASIC.

You can create simple, constant sounds that give your program atmosphere without slowing it down. The **SOUND** command is passed to the **POKEY** chip, a special sound chip in your Atari which also handles the serial I/O bus and the keyboard. The sound you create, say a note or hiss, will play until you turn it off with another SOUND command. Because the sound chip is separate from the main processor, your BASIC program's speed will not be greatly affected by whether the sound is on or off.

Your Atari can produce four sounds at once because it has four independent **voices** (sound channels). Normally each voice has a range of 256 different **frequencies** (or tones, notes, pitches). *Figure 1* shows how these frequency values correspond to the standard musical scale.

The available frequencies stretch over five octaves. Each voice has 16 different **volume** (loudness) levels, from a whisper to a roar. Finally, there are eight different levels of **distortion** to choose from. While your Atari can play pure musical notes, it can also make other sounds, such as a low rumble or a high-speed "engine" noise. The various distortions available can be combined to produce some very interesting noises.

SOUND COMMAND

The simplest way to produce noise on your Atari is the SOUND command, which is used in the following format:

SOUND voice, frequency, distortion, volume

Voice is represented by a number between 0 and 3. Frequency is the pitch of the note you want to play, 0 to 255 as shown in *Figure 1.* When the frequency number increases, the note gets lower.

Distortion values must be even numbers between 0 and 14. Distortion value 0 is a rumble, 2 and 6 sound like a racing car engine, 4 sounds like heavy machinery or an idling engine, 8 is like a rocket, 10 and 14 are pure musical notes, while 12 sounds like a high-speed engine.

Volume can be between 0 and 15, with 0 being off. If you use more than one voice, try not to let the sum of the volumes exceed 32, or else the sound quality will deteriorate.

POKE YOUR SOUND

You can also use POKEs to control the sound registers directly. POKE works much faster than SOUND, so you have more control over your sound effects. Sound registers are memory locations which control the same properties as the SOUND command:

Memory Location	Function
53760	Frequency of voice 1 (SOUND 0)
53761	Distortion and volume of voice 1
53762	Frequency of voice 2 (SOUND 1)
53763	Distortion and volume of voice 2
53764	Frequency of voice 3 (SOUND 2)

continued on page 40

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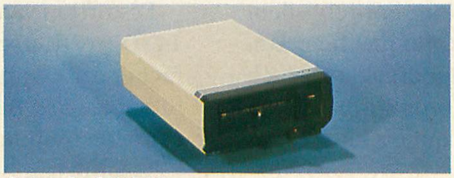
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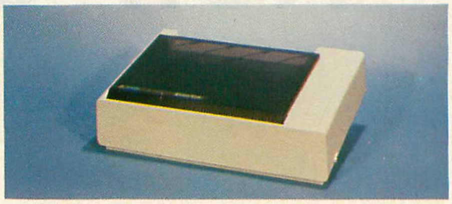
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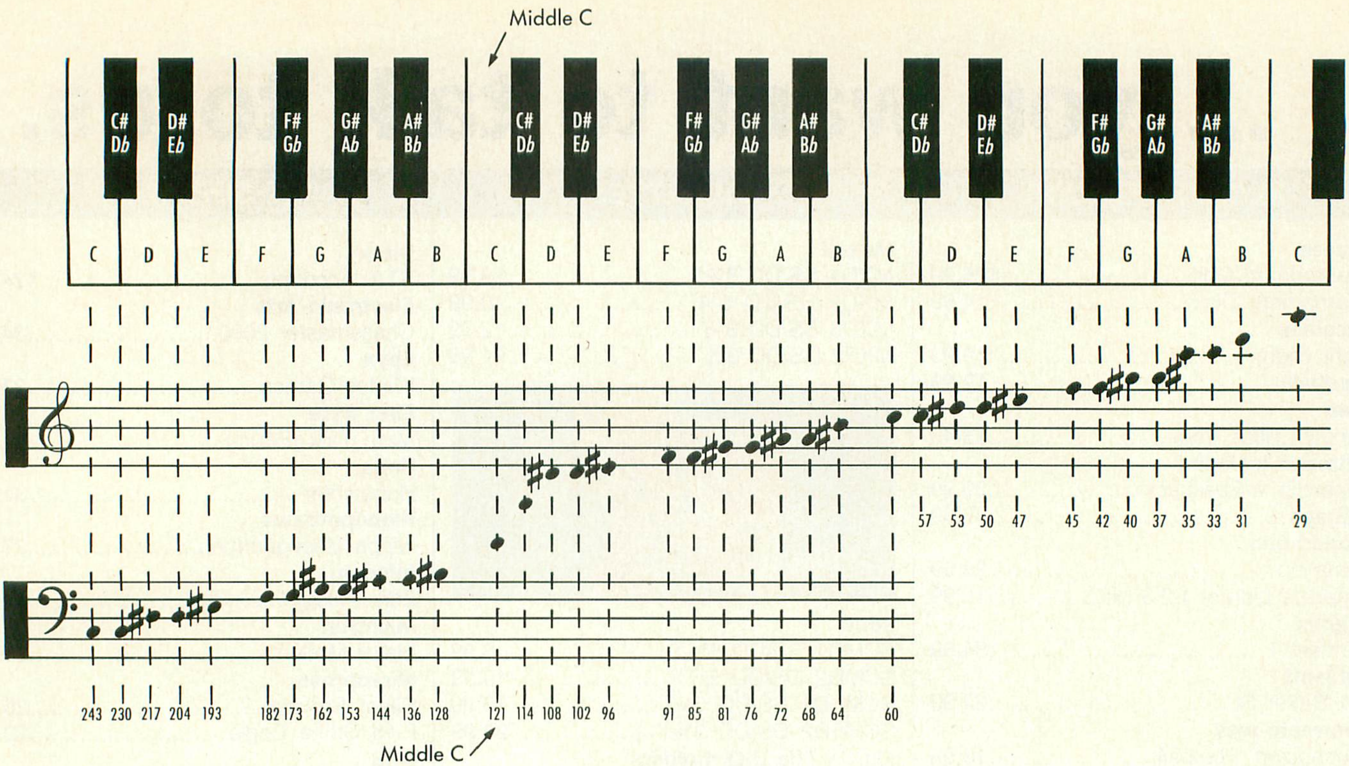


FIGURE 1
POKE values, musical notation and piano keyboard diagram of standard three-octave scale.

NEW OWNERS COLUMN
continued from page 37

53765	Distortion and volume of voice 3
53766	Frequency of voice 4 (SOUND 3)
53767	Distortion and volume of voice 4

The even-numbered memory locations control the frequency of the sound, which is identical to the second number in the SOUND statement. For example, SOUND 0,100,10,8 is the same as POKE 53760,100.

The odd-numbered memory locations (53761,63,65,67) take care of the distortion and volume for each voice, using this formula:

VALUE = 16 * DISTORTION + VOLUME

Here DISTORTION is the third number in the SOUND statement and VOLUME is the fourth. Therefore the equivalent POKE in our example is 16 * 10 + 8, or 168. So to duplicate the above SOUND command, type POKE 53760,100:POKE 53761,168.

You can turn off a note by placing a zero in either FREQUENCY or the DISTORTION/VOLUME registers.

TWO LISTINGS

Listing 1 is a sound organ. Type in Listing 1, NEWOWN14. BAS, check it with TYPO II and SAVE a copy to disk before you RUN it. The onscreen display will show you which keys should be pressed to play a musical scale.

The program continuously executes its loop, counting and reading keys and keeping track of which voices are available. All the while, the sounds you have fingered are playing. If you want to try different sounds, change the note values in the DATA statements and use other notes from *Figure 1*.

Listing 2, SOUNDMEN.BAS , gives you a menu from which you can choose a sound effect. Some of these sounds are quite complex and can be astonishingly realistic. Such sounds are achieved by rapidly varying the frequency, distortion, and volume in the SOUND statements. This technique ties up the main 6502 processor chip, bringing other computing pretty much to a halt.

Create simple sounds that give your program atmosphere without slowing it down.

Experiment with varying the numbers in SOUND statements to get complex custom sounds of your own. And congratulations on graduating from the New Owners Column. These lessons should give you a good start in BASIC programming on the 8-bit Atari computers.

(For more details on programming Atari sound, a good sourcebook is De Re Atari. *Originally published by Atari, copies of this out-of-print reference guide are often available from **Antic** mail-order advertisers.*—ANTIC ED)

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Listing on page 84

Sound Stick

Edit sounds with your joystick

BY WENDELL MOLLYCHECK

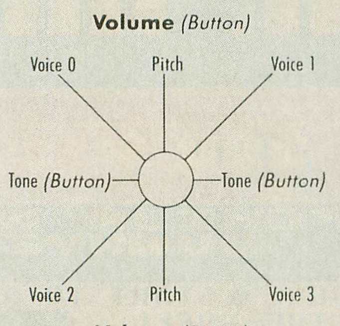
This short, but effective, joystick-controlled BASIC sound editor works on all 8-bit Atari computers of any memory size, with disk or cassette.

One night I succeeded in creating a sound-editing program run entirely with the joystick. But whenever I worked on it again, I added something else. Since I'm my own worst critic, it took many hours to devise the simplest, most effective program that I could.

Type in Listing 1, STICK.BAS, check it with TYPO II and save a copy before you RUN it.

There are four different functions involved in creating sound on the Atari: Voice, Pitch, Tone and Volume. The only tough part about operating the Sound Stick program is remembering that two functions require holding down the joystick button. (See *Figure 1*)

FIGURE 1



Moving the joystick up or down changes the Pitch.

Moving it up or down while holding the button changes the Volume.

When you move the joystick left or right with the button held down, the Tone changes.

Moving the joystick diagonally switches between Voices 0, 1, 2 and 3.

Add it all together and you have a working Sound Stick. but anyone is welcome to send their improvements to the **Antic** I/O Board.

We can't tell you anything about Wendell Mollycheck (or mail his payment yet) because he omitted to send Antic his address or phone number along with this program.

IF YOU'D ENJOY SEEING MORE ARTICLES LIKE THIS ONE, CIRCLE **150** ON THE READER SERVICE CARD.

Listing on page 76

PROGRAM BY CHET WALTERS

Words Are Fun

500-Sector Disk Bonus

Words Are Fun is a slick BASIC version of the Wheel of Fortune word-guessing game. Unfortunately, it is far too long to be printed as a type-in magazine listing. It consists of 273 sectors—*plus* 13 different puzzle files (about 100 words each) averaging 23 sectors apiece. So instead, we're offering it as a Special Disk Bonus for our **Antic** Fifth Anniversary issue.

The programmer of Words Are Fun is Chet Walters, whose Non-Standard Magic! company created Lister Plus and Picture Plus. A frequent **Antic** contributor, Walters' most recent appearance here was *SSSnake* in October 1986.



Words Are Fun will *not* RUN from the Antic Monthly Disk! Before you play the game, you must prepare a special Words Are Fun disk. Use DOS 2 or DOS 2.5 to format this disk. Be sure to WRITE DOS FILES to the disk, and make a back-up copy after you are done.

These files from your Antic Monthly Disk must be copied to your Words Are Fun disk:

WORDFUN.BAS
WORDFONT
HELP
All WFPZZL files

To play, insert your Words Are Fun disk into your drive, type RUN "D:WORDFUN.BAS" and plug a joystick into joystick port one.

After you have loaded the game, you will see instructions for accessing a detailed BASIC Help file which is also on the disk. Following are a few key points from the Help file:

For each puzzle you play, the filename extender increases by one and is used as an index to keep you from repeating puzzles whenever you return to the file. Once the file is exhausted, the extender is reset to 000 and the file gets *locked*. To play the file again, unlock it using DOS menu option G.

After you've played a puzzle file, load it into a word processor to see how the file is constructed. Also note how the puzzle file names are changed on your disk. You can create your own files consisting of words, phrases, things, people and places.

IMPORTANT: *Don't* write-protect your puzzle disk. *Don't* remove the disk during a game. And by all means, no cheating! Don't read puzzle files that you haven't played.

IF YOU'D ENJOY SEEING MORE ARTICLES LIKE THIS ONE, CIRCLE **206** ON THE READER SERVICE CARD.

BY DOUGLAS SKRECKY

Dot-Hopper

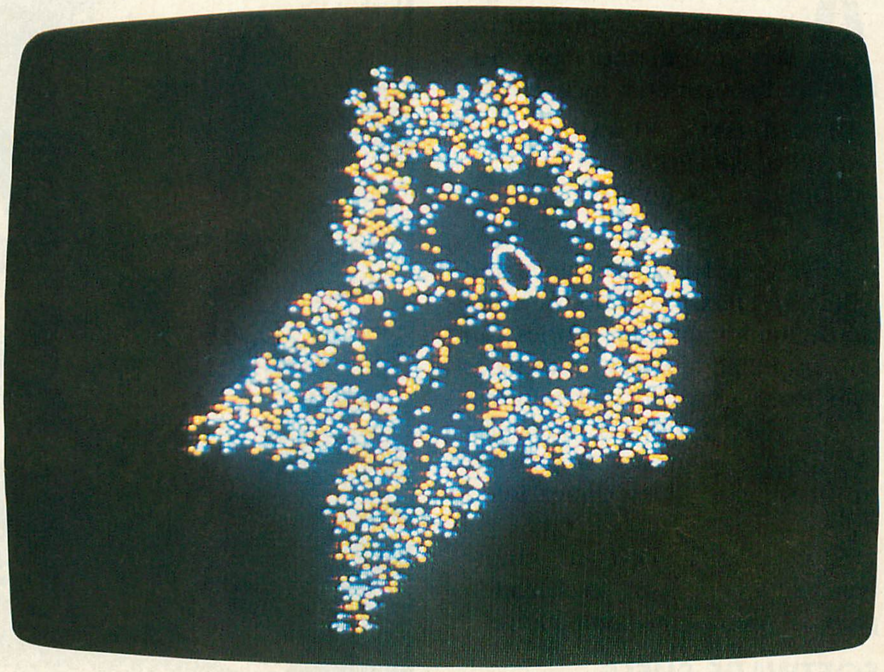
Fast, easy fractal displays

The Professor's pooch got into the cupboard again. Crash! There went the blackstrap molasses—all over the white linoleum floor. Intrigued by the sticky mess, Gerfald the flea hopped off his canine mount to investigate.

"Slurp!" A tiny white dot of linoleum appeared in the sea of molasses. Hopping for joy, Gerfald continued sampling his find. Because he used to be a math major at the University of Tiny Offensive Creatures, our busy gourmand hopped according to a mathematical formula. Slowly a pattern appeared as more linoleum was licked clean.

Mathematically-inclined fleas create incredible fractals

Later, while gloomily surveying the results of doggie destruction, the Professor pondered over his seemingly self-cleaning floor. With his Atari magnifying glass in hand, the astonished scientist discovered Gerfald slurping his way to fame (and obesity)—in a precise pattern. "I'm rich!" exclaimed the Professor. "Ha, ha, ha, ha!"



Help Gerfald the superintelligent flea slurp his way—in a mathematically precise pattern—through a sticky sea of molasses to create fractal pictures such as this one. Evidently Gerfald prefers the taste of the molasses splattered by the Professor's accident-prone dog to that of the dog himself—and the Prof prefers lots of money to none at all.

Dot-Hopper is a short fractal display program that places dots onscreen according to mathematical formulas which can be varied by the user. This BASIC program works on all 8-bit Atari computers of any memory size, with disk or cassette. However, your fractal pictures can only be saved to disk.

continued on next page

BY CHARLES JACKSON, ANTIC ONLINE EDITOR

Treasure Mapping the New ANTIC ONLINE

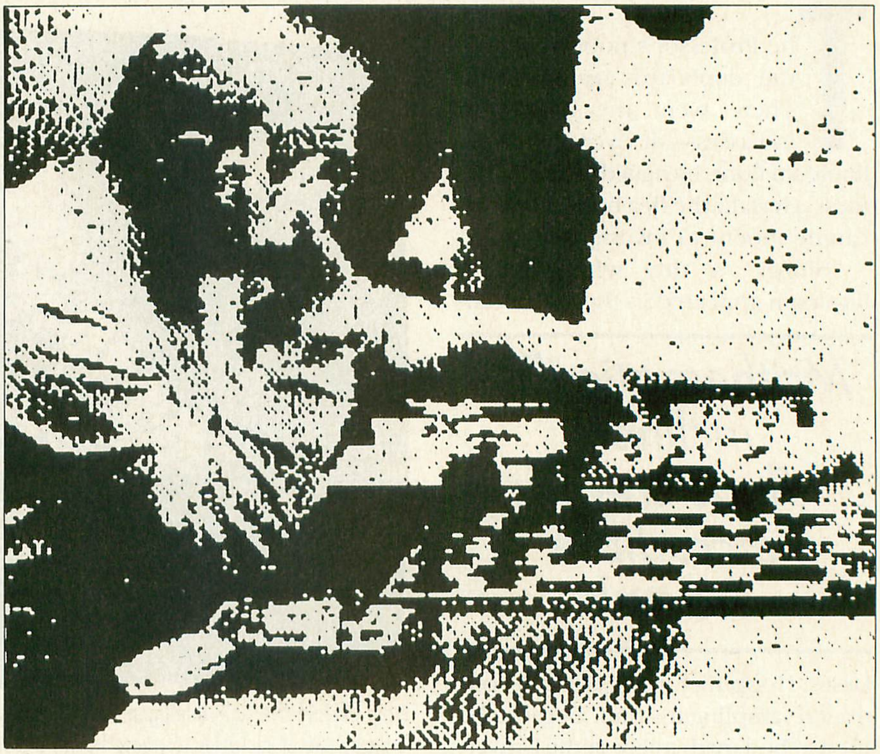
GO ANT-2550 to download software, GO ANT-11 to view pictures

ANTIC ONLINE is back on the CompuServe Information Service, offering more features than ever, including:

—DOWNLOAD SOFTWARE
—ONLINE GRAPHICS
—MORE USER SURVEYS

We've completely redesigned and rebuilt ANTIC ONLINE so it's easier to use. Important news stories can now be added in *hours*. With more than two megabytes of Atari information, ANTIC ONLINE is the largest electronic magazine on CompuServe, North America's largest general information database.

To visit ANTIC ONLINE, simply type GO ANTIC at any exclamation point [!] prompt on CompuServe.



Enlarged detail of chess championship photo which appeared on ANTIC ONLINE.

SOFTWARE SHELF

Now you can download software from ANTIC ONLINE. Every month, our Software Shelf offers eight new or classic programs from **Antic** Magazine. About half of the Software Shelf programs are for 8-bit Atari computer models (400, 800, XL, XE). The rest of the programs are for ST computers.

Download as many programs as you like. There's no extra charge to ANTIC ONLINE users for downloading the software. Full documentation is also available online. If you're a new user, the *How To Download* selection on the Software Shelf menu provides a step-by-step explanation of how to download your first program..

At the end of every month, the programs from the ANTIC ONLINE Software Shelf will be moved into the SIG*Atari data libraries for long-term availability to Atarians—and new programs will appear on ANTIC ONLINE. (Type GO SIGATARI to get to SIG*Atari from anywhere on CompuServe.)

NOTE: All **Antic** and **START** programs remain the copyrighted property of Antic Publishing and are *not* in the public domain. Programs placed on ANTIC ONLINE or SIG*Atari by Antic Publishing may not be reproduced in any manner or uploaded to electronic Bulletin Board Systems without written permission from Antic Publishing, Inc. CompuServe subscribers may download these programs solely for their own personal use.

To visit the Software Shelf, just se-

lect the "Software Shelf" menu option from either the ST Section or the XL*XE section of SIG*Atari. Or from anywhere on CompuServe, type GO ANT-2550.

ONLINE GRAPHICS

ANTIC ONLINE now offers RLE (Run Length Encoded) video graphics. These are two-color hi-res pictures that you can see *now*, while reading ANTIC ONLINE; you don't need *any* graphics software.

Each month we'll feature a new selection of RLE pictures. Some of the artwork will be by the **Antic** staff, other images will come from readers.

For the first time, you'll be able to read our on-the-spot news reports, then *see* them happening. Whenever possible, we'll create digitized photos of trade shows, new products and people in the news, and feature these in our RLE Art Gallery.

Use menu choice 6 from our top menu to get to the ANTIC ONLINE RLE art gallery, or from anywhere on CompuServe, type GO ANT-11

ONLINE USER SURVEYS

We want to know your opinions. Each month, our Online User Survey will ask you to comment on on new products, controversial topics in the industry, and much more.

Once a month, we'll post the survey results, and put up a new survey for you to try.

To take the survey, choose item nine from our MAILBOX section, or type GO ANT-2600 to get there directly.

By the way, if you have a question which you'd like us to include in a future survey, please send your idea to us through our MAILBOX section. We're eager to hear your suggestions!

MORE FEATURES

Look for more consistent late-breaking Atari news. We've streamlined many procedures and made many technical improvements which now let ANTIC ONLINE offer significant news and timely features very quickly (usually within 24 hours).

This is because nearly all of ANTIC ONLINE's "behind-the-scenes" work is now being done in the **Antic** offices. We can add articles virtually as soon as they're written, re-arrange menus that become cluttered and personally do everything necessary to keep ANTIC ONLINE a timely, valuable service.

ANTIC ONLINE now offers the Software Shelf —download software, RLE art and monthly surveys; with 2Mb of information, it's CompuServe's largest electronic magazine

DROP US A LINE

If you have comments, criticism, questions or suggestions, send it to us quickly through ANTIC ONLINE I/O Board. Your messages are read every day. Answers to questions of greatest interest will be included in our Replies Section or printed in the magazine.

Use The Mailbox menu choice to get to the I/O Board, or reach it directly by typing GO ANT-9 from anywhere on CompuServe.

COMPUSERVE SUBSCRIPTIONS

If you're not already a CompuServe subscriber, obtain a starter kit from your local computer retailer. Or phone CompuServe at (800) 848-8990 for information about signing up. Ohio residents phone (614) 457-8650. There's *no* extra charge for ANTIC ONLINE, beyond CompuServe's standard connect fees.

DOT-HOPPER
continued from page 43

START HOPPING

Congratulations, you were hired to help train Gerfald for flea stardom. You have six parameters to tell him how to hop, so go to it. Type in Listing 1, HOP.BAS, check it with TYPO II and SAVE a copy before you RUN it.

Press [C] to create a fractal pattern. Press [S] to SAVE the pattern to disk. Press [L] to LOAD the fractal picture back from disk. Press [ESC] to return to the menu and start again. Pressing the [SPACEBAR] once turns off the screen display and speeds up things by about 30%. Pressing it again restores the display.

You might want to experiment with Gerfald's formula on line 40. Special functions like like SQR, SIN, COS, EXP and raising a variable to a power (such as A^B) slow things down a tad. In place of 1/(1+X^2), for example, try 1/(1+X*X) instead.

There are six parameters: Scale is a magnification factor that lets you zoom in or out. X0 and Y0 let you specify where you want to examine the X-Y axis. Finally A, B and C are the variables needed to generate the pattern.

This month, Antic Disk owners will find a sample fractal pattern, PIC1, which can be loaded from Dot-Hopper. PIC1 was created with these formulas:

```
XX=Y+SGN(X)*(MX*X-CX)
Y=CY-X:X=XX
```

The parameters required to produce these patterns are also included in the Dot-Hopper program. Graphics 8 is used for maximum resolution, and the calculations are done at the start of the program listing (lines 20-60) to speed up execution.

*Douglas Skrecky lives in Toronto, Canada, where he is a member of the Toronto Atari Federation users group. This is his first publication in **Antic**.*

IF YOU'D ENJOY SEEING MORE ARTICLES LIKE THIS ONE, CIRCLE **207** ON THE READER SERVICE CARD.

Listing on page 79

LORDS OF CONQUEST

Electronic Arts
1820 Gateway Drive
San Mateo, CA 94404
(415) 571-7171
Requires color monitor
$32.95, 48K disk

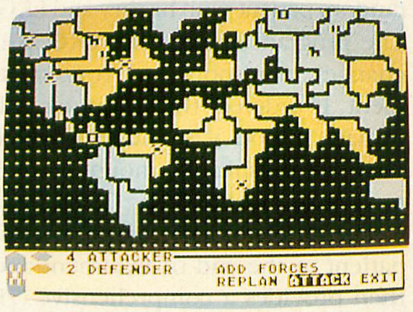
CIRCLE **250** ON READER SERVICE CARD

Reviewed by Gregg Pearlman

Lords of Conquest in some ways resembles Risk, the popular Parker Bros. board game. It's a game of territorial conquest, with the odds heavily in favor of the mighty—the object, obviously, is to be king of the hill (and everything around).

But Lords has 20 prepared maps—infinitely more, if you decide to create your own world with the map-making utility or have the computer generate one. These alternate worlds can be saved to disk. Also, the nine difficulty grades within each of four gameplay levels (beginner, intermediate, etc.) plus a choice of one to four players gives you 144 options.

The more complex the game is, the



more resources are available to you. Beginners have gold and horses, while experts have these plus iron, coal, timber and boats. Each game has four or five annual phases, starting with Development (after the first year) for investing in new resources or building cities. Production is where your resource-laden territories produce wealth.

In Trading (for multiple-player games only), you do your best to talk your opponent(s) into a false sense of security and then do a double-cross at the first opportunity. Shipment lets you move resources to a better location. Conquest, the battle phase, is your chance to wantonly assault neighboring territories in an effort to plunder their resources. This last, naturally, is the most fun.

Battles between territories are based on the number of supporting territories and forces (weapons, horses, boats and cities) on each side. In other words, if one of your territories is surrounded on all sides, you have little chance of mounting a successful attack on a neighbor.

The odds are tilted by "force points," which vary depending on whether you're attacking or defending. Each territory gains points for adjacent territories under the same leader, for cities, horses, weapons and boats. The game continues until one player has developed and successfully defended three cities at the end of a year.

Each Conquest round has two attacks per side, but if the first is repulsed, the turn ends. If you win an attack, you confiscate whatever is there—horses, gold, even the enemy's stockpile.

Lords of Conquest is relatively straightforward and easy to play (though not easy to win), but it does have some unattractive features. Booting takes several minutes plus forever—one could prepare an entire frozen microwave meal and be comfortably seated and eating by the time the game is ready to play.

Also, making the map itself requires the joystick to move the cursor, but the program isn't "joystick-friendly."—it's difficult to move the cursor only one space. And once you've achieved the satisfaction of making your map, be prepared for disappointment. There's no guarantee that the Lords program will even load your map. It might give you an excuse such as "too complex" or "needs multiple players" for no apparent reason, or it might not even find the file.

Waiting for Lords to reboot at the start of each game is annoying. The obligatory "musical tribute" showered on the winner is more punishment than praise. And, in that vein, thank goodness for the sound on/off toggle because you can speed up the game considerably by turning off the in-game music.

Lords of Conquest is not likely to hold your interest for hours on end unless you're a rabid Risk player. But it is fun in many ways and this isn't negated by the game's few quirks.

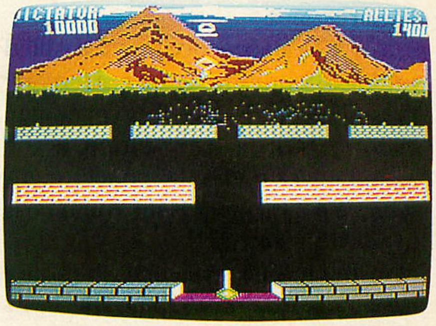
TRIPLE PACK

Access Software
2561 South 1560 West
Woods Cross, UT 84087
(800) 824-2549—National
(801) 298-9077—Utah
$19.95, 48K disk

CIRCLE **211** ON READER SERVICE CARD

Reviewed by Gregg Pearlman

This package is an inexpensive reissue of three multi-screen action games—**Beach-Head**, **Raid over Moscow** and **Beach-Head II**. Graphics and



sound are good, and fans of arcade-style combat games will find hours of enjoyment

Beach-Head's six sequences begin with aerial reconnaissance and the navigation of your ships through a hidden passage. In the first battle phase, you'll man your anti-aircraft guns to rid the air of enemy fighters before they blow your ships apart. It's difficult to get a fix on the individual planes as they pass overhead, but the

continued on next page

display is spectacular when you score a hit. If you neutralize the aircraft, you go to battle against enemy ships. The joystick controls the aiming angle of your guns and an onscreen gauge tells you how far off-target your shells are hitting.

Each of your ships carries two tanks, with which you must fight your way through the island defense systems to reach the fortress of Kuhn-Lin. This is probably as far as most players will get, because the enemy is prepared to pick off your tanks in rapid succession. Without question, it will take you several tries—and a number of lost tanks—to destroy the fortress.

In the final battle sequence, you must land 10 shells in the fortress to destroy it. There are 10 targets, but only one is vulnerable at a time. However, the enemy's cannon never misses, so this won't be a picnic.

Beach-Head II gives another day in the sun to The Dictator—whom you evidently defeated in Beach-Head. Players can assume the role of either The Dictator or J.P. Stryker, youngest man ever to make Allied Chief Commander. Beach-Head II has three levels each, for one-player or two-player games.

The attack sequence sees the Allied forces attempting to get as many paratroopers as possible over the enemy's walls. Enemy gunfire is the main setback to this. Disconcertingly, when a paratrooper is hit you'll hear his death scream.

In the rescue sequence, the Allies have already captured The Dictator's machine gun, with which they try to protect and rescue hostages. In the escape sequence, the rescued hostages must be taken off the island. In the last (and most enjoyable) sequence, battle, Stryker has tracked down The Dictator to an ancient underground temple. The two adversaries stand on platforms separated by an underground river and throw sharpened sticks at each other. This phase lasts nine rounds, and the first player in each round to record four hits wins that round. The combatants occasionally hurl taunts like "Lucky shot" or "Evil never wins."

In Raid over Moscow, the third game, it's hard enough just to get off the ground. Attempting to stop a nuclear attack, you must first launch your fighter pilots out of the U.S. Space Station. Good luck. Because each plane is in a semi-weightless condition, your only control lies in three thrusters and the main engine. After the plane lifts off, you must make it turn and move toward the hangar door. Then you have to open the door. If you can actually get a plane outside the door, you've won half the battle. Now you can start *playing* the game.

You can either take more planes with you, so that you don't have to go back for more if the first plane is destroyed, or fly through enemy territory to attack the missile silos. You can fly low to avoid the radar, but this gives Soviet defense a better chance to shoot you down. Watch out for heat-seeking missiles, which sneak up from behind. If you fly low, they'll go right over you, and you can get *them* from behind. You win if you manage to destroy all the silos.

Each game has an instruction booklet, but they're written for Commodore owners, so be careful. For instance, in Raid over Moscow, you're asked to plug the joystick into port 2. Don't.

CARDIAC ARREST!

Mad Scientist Software
2063 North 820 West
Pleasant Grove, UT 84062
(801) 785-3028
Requires 48K disk and BASIC
$69

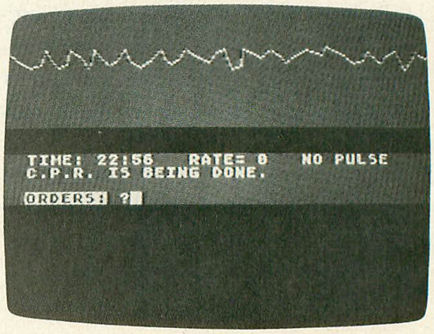
CIRCLE **201** ON READER SERVICE CARD

Reviewed by Eric Clausen

You're having trouble starting an IV, so you might need to administer drugs endotracheally. Either way, how much do you give the patient? How often? Which drug? What other medications does the person take? Don't forget that correctly prioritizing your treatments can make a big difference in successfully treating your heart attack patient.

Physicians, medical students, nurses and paramedics should find **Cardiac Arrest!** fascinating, useful and an invaluable study aid in Advanced Cardiac Life Support (ACLS). This software by Dr. Bruce Argyle of Utah shows off the capabilities of the 8-bit Atari as a serious educational computer.

The Cardiac Arrest! simulator draws on 45 patients (including children), each of whom get different traits in various run-throughs. You're given a



random patient with history and EKG. The program updates the EKG as it changes in response to your treatment. If ordered, the computer will provide blood gas and electrolyte data—after a suitable amount of time, to simulate real life.

The simulator lets you follow your patient to the end of treatment and then provides a comprehensive critique of your performance. Once you've killed a few simulated patients, you really begin to appreciate and pay close attention to these valuable assessments. You can even recall a patient you've just lost, or just go on to another random case (or to a specific case which you can select).

The Cardiac Arrest! simulator is impressive and amazingly complete. And even if you don't have special knowledge of pharmacology and critical coronary care, the down-to-earth,

information-packed manual will make it possible for you to enjoy this software as a kind of interactive medical experience. The manual explains the technical terms and medical treatments recognized by the program.

Cardiac Arrest! has a series of optional teaching disks that present and drill basic concepts in dramatic, immediate format. For example, the $29 EKG (Electrocardiogram) Teaching Disk graphically demonstrates what different types of EKG display patterns look like. Because different cardiac problems are indicated by subtle EKG changes, it's important to be able to distinguish these details.

The Protocol Learning Disk ($29) presents a random patient, a medical history and EKG, from which you're expected to prudently administer drugs, start an IV, defibrillate, intubate, etc. The parser recognizes most common medical terms and their abbreviations, although only one order per line is permitted. After each order, this module tells you whether or not you've acted according to the latest ACLS guidelines. It's not a true simulator, but it does provide immediate feedback regarding your performance and prepares you for simulator module—Cardiac Arrest!

The ACLS Self-Teaching Quiz Disk ($19) stresses airway management, IV techniques, cardiac drugs and basic life support. Other software from Mad Scientist Software is: Blood Gases, $24; Bulletin Board, $14; Demo Disk, $7; Hospital Teaching Package, $249; Hard Disk Version, $199; Personal ACLS Learning Package, $109.

I'd advise any student involved with an aspect of this material to buy this program immediately. Any school teaching relevant material should buy some Atari systems and this software.

As the manual says, "This is not a program for kiddies. The patients are real patients; the drugs are real drugs. Proper use of drugs and procedures will save a life—inappropriate use of a drug or therapy may kill a patient. With the help of the manual and some practice, a person who knows nothing about medicine can soon begin to save lives. The more difficult patients would present a challenge to the emergency specialist."

GOLDEN OLDIES

Electronic Arts
1820 Gateway Drive
San Mateo, CA 94404
(415) 572-ARTS
$29.95, 48K disk

CIRCLE 256 ON READER SERVICE CARD

Reviewed by Gregg Pearlman

HOW DO YOU DO? PLEASE TELL ME YOUR PROBLEM.
My heart aches and a drowsy numbness pains my sense as though of hemlock I had drunk. What can I do?
ARE SUCH QUESTIONS MUCH ON YOUR MIND?
I do not wish such questions to be much on my mind.
WHY DO YOU BRING UP YOUR MIND?
You brought up my mind.
DOES THAT SUGGEST ANYTHING ELSE THAT BELONGS TO YOU?
Chicken hats.
CAN YOU ELABORATE ON THAT?
I'm able to elaborate, but not permitted.
HOW LONG HAVE YOU BEEN ABLE TO ELABORATE?
I have always been able to elaborate.
CAN YOU THINK OF A SPECIFIC EXAMPLE?
Yes.
I UNDERSTAND.
Thank you.
OH, I?
What?
EARLIER YOU MENTIONED YOUR PROBLEM.
Earlier you mentioned chicken hats. Now we're even.
OH, I MENTIONED CHICKEN HATS?
Chicken hats apparently are your problem.
WE WERE DISCUSSING YOU, NOT ME.
Were we?
EARLIER YOU MENTIONED YOUR MIND.
Earlier you mentioned chicken hats. See? I've run rings around you logically.
OH, I MENTIONED CHICKEN HATS?

Are your memories stirred? That, of course, is the transcript of a conversation with Eliza, the computer version of Dr. Ruth. Eliza, Pong, Adventure and Life constitute Software Country's **Golden Oldies** package, distributed by Electronic Arts, which also includes a 28-page booklet covering the histories of those games and excerpts from such books as Tracy Kidder's *The Soul of a New Machine* and Steven Levy's *Hackers, Heroes of the Computer Revolution*.

The games are as they've always been. Pong, played with either joystick, paddles or the keyboard, has two versions, Original Pong and Software Country Pong. The differences are screen color and options to adjust the speed and set the winning score as high as you want. Both versions play the same, but the cursor seems to be easier to control with the keyboard or paddles than with the joystick.

Pong is easy to win once you get the timing down. The computer plays a predictable game. Your mistakes, not the computer's brilliance, will get you into trouble.

Life is a fairly pointless endeavor in which patterns of "cells" change shape with each succeeding "generation." Its attractive feature is that ever-changing screen, yielding a huge amount of patterns. Software Country gives several display choices, including gliders and glider-guns, "R-pentominoes" and kaleidoscopes. And you can enter your own populations or have random populations generated.

Adventure is the original text adventure game. The familiar beginning goes, "You are in a clearing with a building to the west and a stream to the north." You must find magic objects as you weave through labyrinths

continued on page 51

and fend off trolls. By today's Infocom standards, its scope is limited. But in the late '70s, Adventure was considered very innovative.

Eliza probably merits the most elaboration, although it can't actually help you with your personal problems. (In fact, the Golden Oldies booklet contains this disclaimer: "REMEMBER: The ELIZA program is not a 'computer psychiatrist.' It is not intended to provide psychiatric treatment or medical benefit of any kind.") Eliza's purpose is to show how the computer will respond to your input. Eliza has a little trouble with English syntax and takes everything literally. (Do you have any eels? YES, I HAVE ANY EELS.)

Those who have "consulted" Eliza in the past know how frustrating the experience can be. Get a direct answer to a question? Never. But then, of course, the whole process is not to be taken seriously. Eliza has a few dozen stock responses (if that many) and is fairly predictable. Half the fun of consulting Eliza is seeing if you can lock up the computer with your answers.

The Golden Oldies package is fun. There is endless entertainment to be found with Eliza, and Pong is still a good arcade game. Life and Adventure have a fairly limited appeal, but where else will you find them?

WARGAME CONSTRUCTION SET

Strategic Simulations Inc.
1046 N. Rengstorff Avenue
Mountain View, CA 94043
(415) 964-1353
$29.95, 48K disk
CIRCLE **202** ON READER SERVICE CARD

Reviewed by Rich Moore

SSI's **Wargame Construction Set** (WGCS) gives wargamers and adventurers a terrific tool for creating virtually any scenario. You can set up and play out conflicts ranging from individual hand-to-hand skirmishes to extended campaigns between great forces. Background scenarios and force laydowns depend on your research ability—or your imagination. You can build real, modified or idealized worlds, then populate them with armies of "grunts" and tanks, starship troopers and space battle stations, dwarves and dragons or whatever you want.

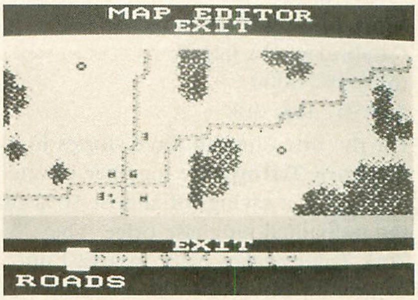
The Wargame Construction Set comes with a Game module to run either your original scenarios or one of eight situations already set up for play. With the Editor module, you can build a game from scratch or modify existing games—including any saved games.

Even if you have some experience with Roger Damon's popular SSI games (Nam, Field of Fire, Panzer Grenadier), it would be a good idea to run one of the WGCS "canned" games to refresh yourself with the play sequence since it *is* a factor in the game design. (By the way,—the scenarios in Nam are *not* compatible with the WGCS although they're close.) The preset scenarios include one-on-one, small unit, brigade and division-level forces in conflicts ranging from the 12th century to the 22nd. They provide good insights into game design.

The "blank" map is a 61×59 grid. You set the scale, be it 10 meters or 1,000 kilometers—you'll know right away if you pick an inappropriate scale. A joystick is used to draw the map by "picking up" terrain features from a window and then depositing them on the smooth-scrolling screen. Terrain types include clear land, hills, crests, a variety of forests, rivers, river banks, open water, roads, bridges, "blown" bridges, minefields and several types of buildings.

"Line of sight" restrictions and level of protective cover are built into the different types of terrain. Engineering units can alter terrain during play by repairing blown bridges and clearing minefields. Once a map is drawn, the colors of the features can be changed to suit the scenario better. You can also print an ASCII character representation of the map.

Games can be set up for one or two players. Each side can have up to 31 units, representing anything from individuals to armies, navies or air wings. The designer has full control over the offensive, defensive, weapon,



movement and strength properties of the forces. You can give units armor, the ability to "dig in," and anti-armor capability. Units can be any of nine different types to further modify their basic properties. Once created, a unit can be "cloned" to rapidly build up a host of similar forces. There are 78 icons available for visual representation of the units on the map; *any* icon can be assigned to any unit. Enemy units in solitaire games have various levels of aggression to ensure that they will engage—or remain defensive. Artillery can be included in a game to represent great but imprecise firepower.

The manual is clear and concise, covering a multitude of design and play factors to consider when building a wargame or adventure. The reference card on the back cover is helpful, but it would have been nice to also have pictures of all the icons for the units and terrain types.

The Wargame Construction Set is a great tool for game development and play. Individuals and groups can create scenarios for themselves and share their work with others. I'd like to see SSI or an independent users group form an exchange for scenarios built with WGCS and a central meeting point for people interested in constructing games.

*New Products notices are compiled by the **Antic** staff from information provided by the products' manufacturers. Antic welcomes such submissions, but assumes no responsibility for the accuracy of these notices or the performance of the products listed.*

ZORK TRILOGY

(text adventure)
Infocom, Inc.
125 CambridgePark Drive
Cambridge, MA 02140
(617) 492-6000
$59.95, 48K disk

For the first time, all three stories in the **Zork Trilogy** are together in one package at a savings of almost 50% off the individual purchase price. The Zork Trilogy takes place in a vast underground labyrinth—the remnants ofthe Great Underground Empire. Zork I takes you into this fabulous land in search of its incomparable treasures. Zork II sends you on a journey to a long-hidden region of the empire, dominated by the frivolous Wizard of Frobozz—who pops up from time to time for the express purpose of annoying you. Zork III draws you into the deepest and most mysterious regions of the empire and features encounters with Dimwit Flathead and the Dungeon Master.

CIRCLE **221** ON READER SERVICE CARD

PRINTER CONNECTION

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The **Printer Connection** is a high-quality printer interface on a 10-foot cable. It fully supports Atari graphics, using the same custom chip as the $89.95 P:R: Connection. It is an inexpensive way to use the same printer with both XL/XE and ST computers. (Atari 1200XL computers require an internal modification.)

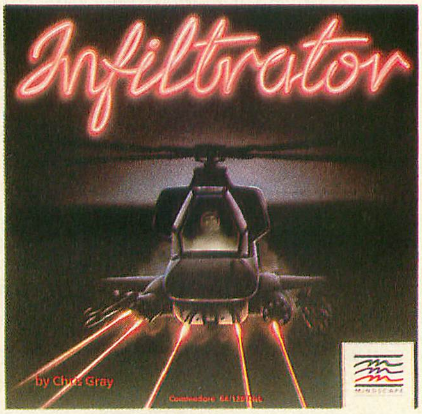
ICD's industry-standard six-foot **Modem Cable** ($14.95) connects standard 25-pin modems to the P:R: Connection or 850 interface, and the **Printer Cable** ($14.95) does the same thing with parallel printers.

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BOP 'N WRESTLE, INFILTRATOR, TRAILBLAZER

(action software)
Mindscape Inc.
3444 Dundee Road
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$29.95 each, 48K disk

Enter the ring with the meanest, grungiest pro wrestlers ever built. In **Bop 'N Wrestle** you'll use the joystick or keyboard to chew up and spit out such opponents as Molotov Mike and L.A. Bob as you claw your way to the top.



Infiltrator sends you in your helicopter through enemy airspace toward strategic targets designed to destroy the Mad Leader's military force. This animated graphic adventure combines realistic helicopter flight simulation with exciting military ground action.

Trailblazer offers a series of soccer ball races through hyperspace networks of changing color grids. One or two players race through the 20 fixed courses on a split screen or travel through a random course.

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WHITE BAG SOFTWARE

(entertainment software)
TK Computer Products
P.O. Box 9617
Downers Grove, IL 60515
(312) 382-5244
$14.95, 48K disk

TK has released eight new discount titles at $14.95 each. **Money Spin** is the 8-bit Atari's answer to "Wheel of Fortune," the only thing missing is Vanna White. You can even put your own puzzles onto data disks. In **Balloon Pop**, use joysticks or paddles to help clowns bounce higher and higher to pop hundreds of red, white and blue balloons. **Barnstorm** brings back the challenges of the biplane pilot era, in 26 difficulty levels.

Play backgammon in **Gammon** with colored dice, doubling cube and screen-wide playing field, or go on a space mission to destroy all enemy missile launchers in **Laser Fed**. **Air Hockey** is a fast-moving, computerized version of the table-top game. **Lottery** tracks winning lottery numbers and gives probabilities of future winners. The **Character Set Utility** does all the programming work to let you create your own alternate characters on the Atari.

Also from TK is the **Monday Morning Manager Team Disk** ($20), containing 128 teams not on the master disk, and **Bowling** (Version 2, $20), featuring arcade action for up to four bowlers, with sound and graphics.

CIRCLE **215** ON READER SERVICE CARD

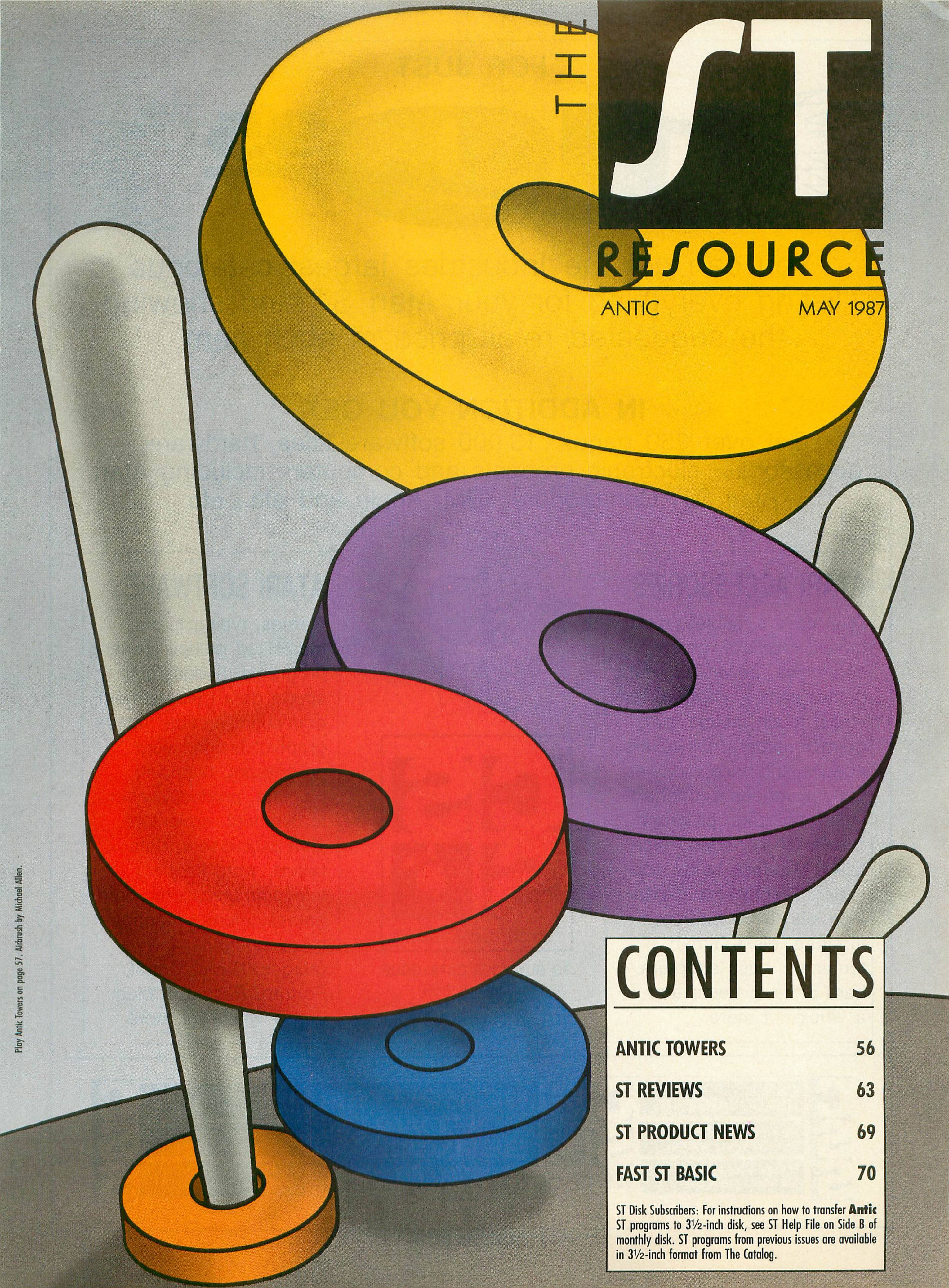
PHANTASIE

(fantasy role-playing)
Strategic Simulations Inc.
1046 N. Rengstorff Avenue
Mountain View, CA 94043
(415) 964-1353
$39.95, 48K disk

In **Phantasie**, a party of one to six characters search the Isle of Gelnor for nine rings that will rid the land of the Dark Lord. Players can creatively combine the eight races and six classes of characters that include humans, elves, dwarves, thieves, warriors and wizards. Over 80 types of monsters are fought and many puzzle challenges must be overcome in the quest through 10 dungeons.

CIRCLE **220** ON READER SERVICE CARD

Return the favor. When you call a manufacturer or supplier about a product you've seen advertised or otherwise mentioned in ANTIC, please tell them so. This will help us to continue to bring you the latest information about products that will make your Atari computer an even more valuable investment in the future.
—ANTIC ED



THE ST RESOURCE

ANTIC MAY 1987

Play Antic Towers on page 57. Airbrush by Michael Allen.

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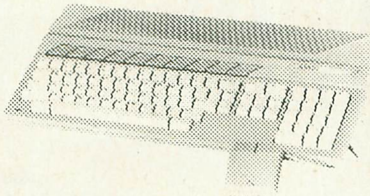
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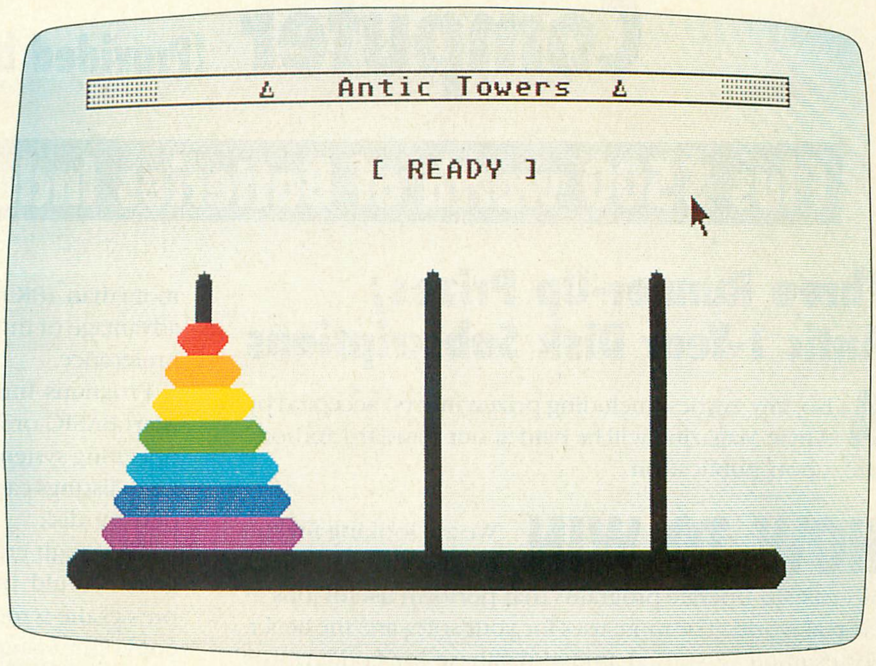
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ANTIC TOWERS

An 8-bit classic comes to ST

Program by PAUL PRATT and STEVE EVERMAN
Article by PATRICK BASS, Antic ST Program Editor

We all tend to think video games have been around five, maybe ten years at the most. This month, Antic's ST Resource presents a videogame which was first written about 4,000 years ago.



Antic Towers is an Atari ST BASIC version of a popular 4,000-year old brain-twister. As you keep adding disks to move, the game's complexity increases exponentially.

EVE'S APPLE?

No, it wasn't written on the legendary Apple 0.5, or even the rumored Atari Model 1. If anything, it was written (in disk format, of course,) on a early CLAY-0 computer, and has been used by educators for many thousands of years as a test of a person's reasoning ability. Believe it or not, you've probably played this game many times under another name.

Originally, the game was called the Towers of Hamurrabi, and more recently, the Towers of Hanoi. For our super version in the ST Resource we decided to call our program Antic Towers, to coincide with us moving to our new, expanded building near the heart of downtown San Francisco.

The object of the game is to transfer however many disks you start with from the left pole over to another pole in the least number of moves. Sounds easy, right? However, you *can't* place a larger disk on top of a smaller disk. Now it gets harder.

VAYA CON DIABLO

Harder? It starts out easily enough, but the devilish part of this game is that the complexity of the game increases exponentially with the number of disks to move. This means the least number of moves required to complete the game will be the number of disks raised to its power of 2, (minus one). Sound complicated? It's not really. Here's a list of the minimum number of moves needed to complete each level.

DISKS:	MOVES
1	1
2	3
3	7
4	15
5	31
6	63
7	127

So you can see that with seven disks, the least number of moves you could finish the puzzle in is 127. And if you get confused, the number grows upward from there. Plan to stay all day!

TYPING IT IN

Carefully type in Listing 1, TOWERS.BAS, using either the editor

continued on page 59

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HOW TO WIN

We are looking for the most powerful, versatile, easy-to-operate programs that perform useful jobs in the real world. The more uses for your software, the better. For example, a stuffed-animal database for taxidermists would probably be considered too specialized by the magazine's judges—no matter how excellently it is programmed.

The winning software must be user-friendly, most likely menu-driven wherever possible. Users should not need programming knowledge in order to successfully operate the application programs.

Please note that some of the other popular Atari program categories—such as utility routines that add power when inserted into your own programs—cannot properly be considered applications. Practical application programs should be complete, stand-alone software that does an entire user-controlled job from start to finish. For example, a drawing or painting program would be a practical application—a colorful graphics demo would not!

TECHNICAL RULES

Programs must run on the Atari 800, 800XL and 65XE models and require no more than 48K memory. However, programs that *also* take advantage of the extra memory in the 130XE will be given preference.

Programs must be written in standard renumberable Atari BASIC or MAC/65 assembly language, under a disk operating system compatible with Atari DOS 2 or 2.5. Program listings cannot be larger than 150 sectors of a single-density disk.

Thorough error-trapping is very important. Your program should not crash every time a user accidentally presses the wrong key. And please do not include authors' copyright statements in your listing.

JUNE 15, 1987

All entries in the **Antic** 8-Bit Practical Applications Competition must be received by June 15, 1987. Winners will be announced in the November, 1987 issue of **Antic**. Judges' decisions are final.

Entries—programs and accompanying articles—should be submitted on disk *and* in printout. Entries will be returned only if the author provides a stamped, self-addressed envelope.

Send entries to:
Practical Applications Competition
Antic Magazine
544 Second Street
San Francisco, CA 94107

All 8-bit practical application programs accepted for publication by **Antic** between November 1, 1986 and June 15, 1987 will also be automatically evaluated as potential prizewinners in the contest.

built into ST BASIC or your favorite word processor. If you use a word processor, make sure the file is saved in ASCII format, which basically means making sure WP mode is turned off in 1stWord, or selecting the proper menu selection from WordWriter. (See the January 1986 Antic for more information on using a word processor to type in ST BASIC listings.) When you finish, run TYPO ST and generate the TYPO Table for TOWERS.BAS. Check each line entry. If one of the checksums doesn't match, recheck that particular line again. Antic Disk Owners: TOWERS.BAS is on SIDE B of the Antic Monthly disk. Follow the ST Help file instructions to transfer the program from your 8-bit disk to your ST.

It starts out easily enough, but the devilish part of this game is the complexity of the game increases exponentially with the number of disks to move. Now *it gets harder.*

PROGRAM BREAKDOWN

TOWERS.BAS is a straightforward BASIC program which includes some interesting GEM tricks performed within an ST BASIC environment. While it will run and operate in any resolution, it likes LO-RES best,and will encourage you to use it. LO-RES brings out the best colors in the game by far. Now, let's examine the program in detail.

Lines 1000-1050 are comments, signified by the leading single-quote. Lines 1060-1300 set the program up, and clear the screen graphically. The routine **MAIN** is where the program spends most of its time. First, get the current state and position of the mouse from the **GET.MOUSE** call. Next, determine if we're picking a disk up, or placing one down. If placing one down, check for the end of the game, and when the end is reached (by moving the disks successfully), fall through and END the game. The subroutine **PULL/PULL.UP** will extract a disk from a pole, and **DOWN/PUT.DOWN** will place the disk back down on a pole. Below that, between lines 2230 and 2370, **NEW.GAME** refreshes the ST and readies it for another round.

CALL FOR PHILLIP VDI

Examine the subroutine **VRO.COPY-FORM**. This subroutine calls a GEM VDI function which will move a picture around the screen by using "bit-block" transfer, which is more commonly known as blitting. This function is built into every ST computer. You need to specify the upper-left corner coordinates, along with the width and heigth of the block to blit, and where to move it to. When the call is made, the block magically moves. (You'll see this feature used extensively in an upcoming version of "Kaboom" which Pratt and Everman are writing for us.)

Check out the subroutine **REVERSE**. Have you needed to PRINT to the screen in reverse video? This one does it for you. It actually makes a call to GEM VDI to set the writing mode to reverse. Below that, the routine **POLYLINE** duplicates the GEM VDI call **v_pline()**, which will draw line segments from point to point very, very quickly. Here, it's used to erase the borders around the perimeter of the screen.

INTO THE FUTURE

A 4000-year-old game? Yes. We ran it to show just how incredibly compatible the ST series computer is with software created before its time. Well, that's stretching things a bit, but it's certainly easier coding a game from 4000 years ago than one from 4000 years in the future!

Listing on page 85

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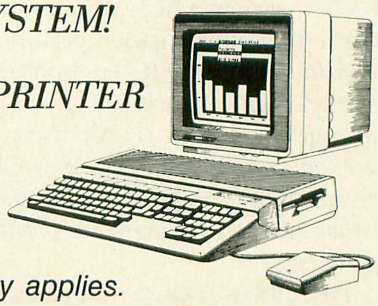
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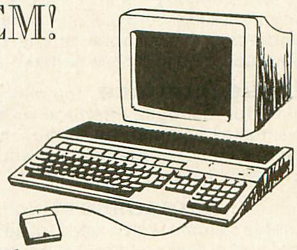
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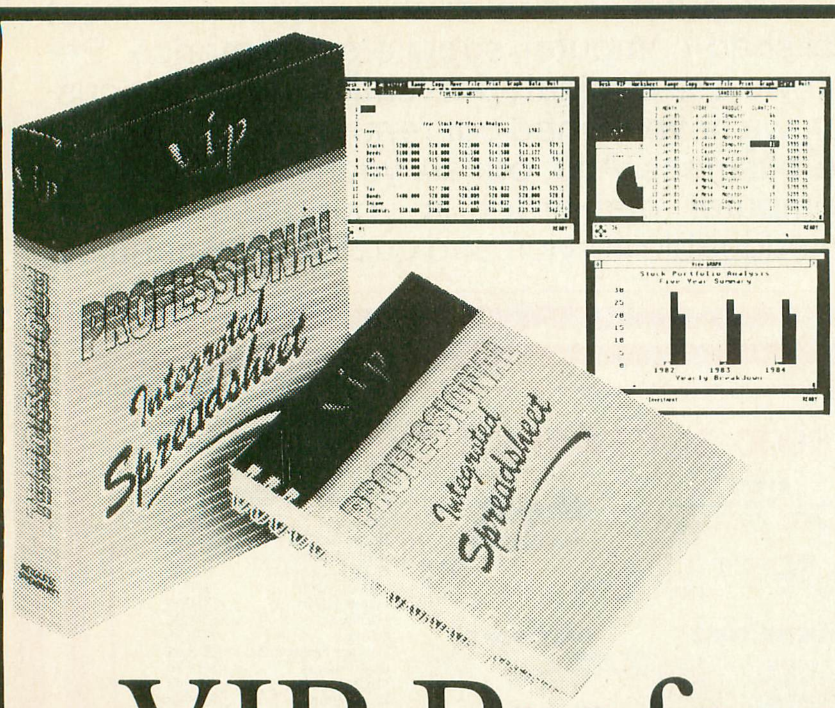
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ST PRODUCT NEWS

ST Reviews

EXODUS

Ultima III
Origin Systems Inc.
340 Harvey Road
Manchester, NH 03103
$60.00

CIRCLE **246** ON READER SERVICE CARD

Reviewed by Sol Guber

My side still hurts from where the Goblin got me last night. I don't know why clerics need to fight. I should just stay in the background and let Los, our leader, fight, or Rebec, the barbarian. They're the ones with all of the strength, and the good weapons. That's all we spent our money on, weapons and armor, but I need to buy good spell books to protect our party. I even have to protect Gabe, the Bobbit. I don't know why Los wants him in our party, even though they make the best thieves. I just don't like Bobbits and don't know why. It must be all that hair.

I still don't know why I came along. Fame? Glory? Ah, I remember—to save the world. Clambering around in dark dungeons is not for a clever, studious elf like me. I even get seasick on little lakes, much less going across the ocean. I just want to stay in a nice town. I want to learn more spells and become powerful. I don't care for gold or jewels, and I don't want to spend all of my time in pubs like Los does, but what do you expect from humans? They just want to eat and drink and have a good time. No sense of the future. On the other hand, between Los and Rebec and Gabe, we have lots of skills, and we sure fight well together. On the third hand, I hate spiders and gelatinous cubes even more than I hate ogres and goblins. Maybe Bobbits aren't so bad.

Playing **Exodus, Ultima III**, one of the premier adventure games, is not quite this detailed. You do need to throw yourself into the spirit of the game (as much as I did, above) and it will take you many, many hours to solve the game and rescue the world. To do this you gather a party of four adventurers (Four Samurai? The Magnificent Four?) and explore the land of Sosaria. As with many Dungeons & Dragons-type games, you can define the characteristics of the various characters, building their individual strengths to make them into a balanced, powerful party.

Exodus—Ultima III for the ST is quite similar to the Atari 8-bit version. The graphics are nicer and more detailed, and the action is a great deal faster. However, there are signs this may have been a quick "port" over to the ST. There is still a great deal of disk access in this version, especially when you move around the various towns and speak to the various people. It makes good use of the mouse, but the combination of the mouse and keyboard commands makes for a slightly cumbersome interface. Also, the communications between the players and the townspeople, when you need to purchase something, are somewhat awkward. I had hoped for dialog boxes and graphics which would make things a little better.

Should you buy the ST version of Ultima III? If you have a version of Ultima III for your 8-bit, I wouldn't recommend upgrading to this version. The documentation is roughly the same, except for an included pamphlet on the ST version. The graphics are nicer and the monsters, not surprisingly, have finer resolution. If you don't have Ultima III, then you will not be disappointed with this version. It has all of the fine trademarks of the Ultima series and Lord British's work.

ROGUE

Epyx Inc.
1043 Kiel Court
Sunnyvale, CA 94089
(408) 745-0700
$39.95

Reviewed by Jonathan Huston

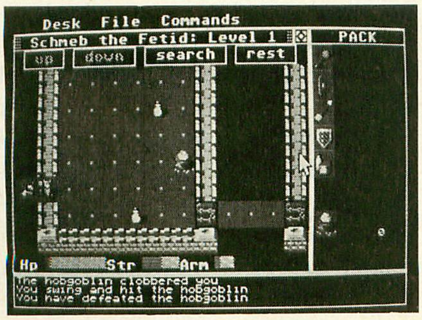
You begin as a novice warrior. In the north wall of a large room is a door, and on the ground before it is some type of stick. You move over to the stick and it turns out to be a brass wand. It appears in your pack. You walk through the door and in the next room is a hobgoblin and a pot of gold. Reaching into your pack, you grab your bow, draw an arrow, loose it at the hobgoblin. It hits. But the hob-

continued on page 65

goblin, seemingly unaffected, moves towards you. Another arrow misses. The hobgoblin has almost reached you. The next arrow finds its mark and the hobgoblin dies. You have now achieved the rank of Guild Novice. The 32 pieces of gold you found bring your total funds to 133. You are on your way to rescue the Amulet of Yendor and enter the Hall of Fame.

In the early days of computers, **Rogue** was originally designed and played on mainframes. It was the first character-in-a-dungeon game, just as Adventure was the first text adventure game.

The striking feature of Epyx's new ST version of Rogue is its clear, almost 3-D graphics. It loads in low resolution with extremely colorful icons. As you go deeper into the dungeon, every monster and object is just as colorful and comes complete with



shadows. Only after some play will you notice the complete lack of sound effects, not even an occasional ding. By then, though, you'll be drawn into the game by its visual effects and discover how playable it is, so the absence of sound won't matter.

Despite the striking visual effects, Rogue is not a video arcade game, but a fantasy role-playing strategy game. The rooms and passages are divided into squares, and movement from one square to another takes one "turn." So do other actions such as drinking a potion, drawing a sword, or reading a scroll.

At first, Rogue is so easy that you could easily find yourself venturing down to the dungeon's sixth or seventh level on your first game. But after several hours, you begin to understand the subtle range of difficulties as you repeatedly get done in by centaurs and trolls on the lower levels.

The game stays interesting every time you play, because something new happens. There is no mapping necessary because each level is always different and a map of the current level is displayed on the screen.

Objects you can pick up include armor, weapons, scrolls, potions, rings and wands. There are more than 20 of each item, and in every game I usually find some item I haven't seen before—even after about 150 hours of play.

There are also 26 different types of monsters. New ones appear as you descend further down into the 26-level dungeon. Though I may have currently burned myself out on the game, I still feel that I could get back to playing it again in a few months. That, of course, is one of the advantages of fantasy role-playing games. Unlike an adventure game, there is more than one possible solution.

Rogue does have a few irksome features. After clicking on ROGUE.PRG, it takes about 20 seconds to get to the screen where it asks you to enter the character's name, and then another 15 seconds before it actually starts. Once you begin playing, however, the game doesn't access the drive again until you die, when it saves your score to disk.

Another irritation is Save Game. When you reload Rogue to continue your game, it will load the saved file and put your game back. But it immediately deletes the saved game file from disk. Thus you are prevented from saving your game at a certain point, dying later and going back to your previous saved game. There are ways to get around this, but it's still annoying.

Yet after you finally return to the surface with the fabled Amulet and sell off the accumulated items, it will have been worth it. The only sad note is that the game is over. But then, you can always beat your last score, right?

Rogue is copy-protected but loads fine on double-sided disk drives. Oh yes, my character, Conehead, won with a total score of 18,361 gold pieces. See you in the dungeon.

TEMPLE OF APSHAI TRILOGY

Epyx Inc.
1043 Kiel Court
Sunnyvale, CA 94089
(408) 745-0700
$39.95

CIRCLE **003** ON READER SERVICE CARD

Reviewed by Gregg Pearlman

Epyx has dressed up its **Temple of Apshai Trilogy** for the ST. But that's really all it is: dressed up. While those who enjoyed this best-selling fantasy role-playing game on the 8-bit Atari will certainly enjoy it on the ST, the question is whether or not they'll enjoy it more than before.

Temple of Apshai isn't significantly better on the ST than on the 8-bit. The main improvement lies in the graphics. The ST version is visually more colorful and cleaner than its forebearer. In the older version, your weapon could completely miss an opponent, and yet you might still register a kill. In the ST game, there's no doubt about the weapon finding its mark. The sound effects are also impressive, especially the theme song that plays over the title screen.

The new version makes use of the GEM interface, but the player constantly has to switch between the drop-down menus and the keyboard. You can't just click on things you want to change and enter new values. The mouse cursor goes to the end, not the beginning, of each line, and pressing [RETURN] doesn't seem to do anything. To make changes, you must

continued on next page

backspace—once for each letter or number, because holding down the [BACKSPACE] key won't put the cursor at the beginning.

Character movement is also more difficult with the mouse. One click establishes the direction, and another click moves the character to the location of the cursor arrow. But the mouse cursor is temperamental, and must be cajoled into doing what you want. While in the 8-bit version you can hold down the [A]ttack key and rain several blows on your opponent, the ST won't allow this with the mouse, so your mortality rate will be higher in the new version.

One problem with this type of game is that it takes quite a while to establish a character—but the character could die before you settle back in your chair. With the Create Character option, the computer randomly generates the character's attributes and purse size. You won't be rich enough at first to afford good equipment, and this makes it tough to survive for more than a few minutes.

To avoid this, use Enter Character. Go ahead, give yourself the maximum personal characteristics and scads of money. The fun is in *playing* the game, not in thrusting poor, weak characters into the Temple like marshmallows into a fire. Plenty of other challenges are still left. There are always secret doors through which to pass into a hitherto unexplored area. But you might take three days plus forever to find those doors.

Once your character is established, you need to buy armor and weapons. This would be fine if you didn't have to haggle with the Innkeeper, which can easily take 15 minutes. But after you leave the Inn, the realms you'll explore are the Temple, the Upper Reaches and the Curse of Ra. Each has four levels, and perseverance will push you through 568 rooms and into the waiting arms—and possibly jaws—of the foul things that dwell there.

The screen alerts you to the presence of these nasties with the preface, "Oh, no," as in "Oh, no! Antman," or "Oh, no! Bugs," or even "Oh, no! Housewife!" While you might think this is the Mr. Bill Show, bear in mind that this is a game with a sense of humor. The horrid, fetid beasts you'll meet include giant leeches, zombies, monks (varieties include drunk, asleep, angry and vampire), criosphinxes, field mice, cats, dogs and chickens—none of whom appear without that "Oh, no!"

The Temple of Apshai Trilogy is essentially an enjoyable game, among the most popular of its genre. Many of the elements are interesting and imaginative. Apshai probably should have actually been souped up a bit more for the ST, though, instead of just looking that way.

PERSONAL MONEY MANAGER

MichTron Inc.
576 South Telegraph
Pontiac, MI 48053
(313) 334-5700
$49.95

CIRCLE **280** ON READER SERVICE CARD

Reviewed by Jim Pierson-Perry

Personal Money Manager (PMM) is a well-designed application program for maintaining personal financial records and preparing summary reports. Its strengths are in tracking cash-flow transactions between income, savings and expenses to show your spending habits. With this data, you can develop an accurate budget and monitor your actual expenses against it. Fixed assets (house, cars) and long-term liabilities (mortgage, loans) are not considered, which precludes net worth determinations. The program runs under GEM and supports both medium- and high-resolution screen output (low resolution causes abnormal screen formatting).

The heart of the program is a group of accounts which you set up when you first run PMM. These can be either assets (savings, checking, cash, credit cards) or expenses (income, monthly expenses). The number and nature of these accounts are left for you to customize for your own needs. PMM can handle 999 accounts, but few people will need more than 30. Transaction data is entered and stored on a monthly basis, and a separate data file is automatically created for each new month of data. The program automatically creates and maintains by backup files.

Transactions are entered as two parts (standard double-entry bookkeeping), reflecting the account for the source of the funds and the account to which they go (for example, checking to mortgage payment). Automatic splitting can be set up where funds from one source account are divided across up to eight destination accounts. This is useful for such cases as payment of several fixed monthly bills from a single paycheck

PMM works with up to a year's worth of financial transactions at a time. For each new year, copy the program and resource files to a newly formatted data disk. When you first run the program, you'll create the accounts file and enter their estimated yearly budget on a month-by-month basis. You can begin using PMM at any time during a year, but only a year's worth of data can be accessed on a single disk.

Three families of program options are available as drop-down menus: File, Process and Reports. File options are utility routines, such as changing the current month for entering/editing transaction data, saving data to disk and exiting the program. Process options handle data input and editing. These routines include initial accounts and budget set-up, entry and review of transaction data, and establishment of automatic splitting. The Reports options generate summary

reports covering the annual budget, all expenses to date, account balances versus year-to-date budget, all transactions for a given month, and all transactions for a specific account during a given month. All reports are sent to the printer.

Data entry and review are aided by screen templates customized for each Process option. These layouts are well-planned to maximize information content without appearing cluttered, and it's easy to enter data or commands using a unified command structure for all Process options.

All transactions are assumed to be for the current month (specified when the program is booted). You can use the File option to change the current month at any time, but be sure to save any data in memory before doing so or the data will be lost. The same rule also applies before exiting the program. The program won't automatically save your data, but it will remind you to do so if necessary.

Those familiar with other home financial management programs may notice the absence of some bells and whistles from PMM. These include flagging transactions for tax records, graphical analysis, and descriptive memos for individual transactions. To me, they don't add much, and I'm glad they were left out. When was the last time you had a burning need to see a plot of your monthly food expense?

Be aware, however, that one advertised feature of PMM is apparently wishful thinking and not fact—the ability to print checks. Although this is mentioned in the MichTron ad, there is no mention of it in the program or its documentation. If this is important to you, I advise you to contact the company for the current status of this feature.

I recommend Personal Money Manager as a good tool for household financial management. It's easy to use and even comes with a set of practice data files to help learn the ropes. Using PMM to help track your expenses will help you make and stick to a workable budget. You may well find enough ways to save money that the program will more than pay for itself.

MEGAFONT ST
XLent Software
PO Box 5228
Springfield, Virginia 22150
(703) 644-881
CIRCLE **283** ON READER SERVICE CARD

by Sol Guber

continued on next page

My boss thinks Bigblue gives my reports more class. My wife considers cursive more friendly for her letters. And my daughter loves either outline or Stop for her stories. What am I talking about? Fonts.

The term font originated with the printing industry. It means a specific typeface, such as Goudy and Helvetica, or generic variations, such as italics and bold. Many computer programmers weren't familiar with the term until the Macintosh came along, with its own built-in variety of differing typefaces. The Atari ST should have the capability to use different fonts, both on-screen and on printouts, when GDOS is generally released. (It should be available by the time you read this.)

Until then, we'll have to settle on **Megafont ST**. Megafont ST prints out different fonts and more. It allows you to mix graphics with your printing, and lets you print different fonts on discrete parts of your document.

Megafont ST works with Epsons, Epson compatibles, Atari printers, and the Prowriter and NEC 8023A. When you load the program, a dialog box asks for your printer type. At the top of the screen, a menu appears, allowing you to choose your font types, file types, print modes, other options, and graphics.

The font type allows you to pick which font style you want, either the 8×8 or 8×16 style. The 8×8 fonts take one pass of the print head while the 8×16 type takes two passes. There are 21 different 8×8 styles and 16 different 8×16 styles. Once you have selected the font, you can select how the file will be printed. Your choices include printing out 1ST Word files, Wordstar type files, or files just as they are.

The print mode lets you select from four different sizes: small, medium, large, and extra large. Once you select the size, you can then pick the line margins you need, line spacing, whether or not to automatically paginate, and bold facing.

Now comes the fun part. Select a file to be printed and zip it off to your printer. The printing is fast and very smooth. A test comparison between normal printing and Megafont printing shows a slowdown of only 25% for the 8×8 printing and 50% for the 8×16 printing, which takes two passes of the print head.

The graphics option allows you to embed monochrome pictures from either DEGAS or NEOchrome into the body of the text. You can also put icons from either Typesetter, Rubber Stamp, or Print Master Interface into your text. The method for doing either of these is quite simple. Just add a line similar to |DA:MYPIC.PI3| and a picture is added to the text. The program will even skip to the top of the next page if you need room.

The last option with this program is the ability to make your own fonts. There are two programs on the disk that let you make either the 8×8 fonts or the 8×16 fonts. They work easily and quickly. These programs are compatible with the DEGAS font printer.

Megafont ST is an excellent, easy-to-use program that makes typing reports much more fun. It's the next best thing to GDOS.

MIND MINE ST CLOCK

Mind Mine Computer Center
13256 N.E 20th Street, Suite 4
Bellevue, WA 98005
(206) 641-6138
$49.95

CIRCLE **205** ON READER SERVICE CARD

Reviewed by Mike Morrow

At least two companies have found different ways to add a continuously operating system clock to the ST. If you don't want to keep Shanner's LogiKhron card (reviewed in **Antic**, October 1986) in your ST cartridge slot, you might prefer the **Mind Mine ST Clock** solution—which plugs a small board inside the ST. No soldering is required. But of course you must unscrew the ST case, which will void your Atari 90-day warranty.

The ST Clock's six typewritten pages of instructions are very complete and include detailed pictures of every important step. Whenever extra care should be taken, the step is preceded with the word "WARNING" or a whole line of "**IMPORTANT**" This is one of the best installation documents I have seen in a while. The disk auto-loading software is equally good.

The installation process requires that you remove a ROM chip at the back of the keyboard, plug the ST Clock board into the socket and remount the chip into a matching socket on the board. Doing this right is more demanding than it sounds. ST computers are very compact units and the ST Clock board, while small, is still pretty thick for the space available to it.

The logic board at the back of the keyboard unit sits on top of the metal shield which houses the CPU (central processing unit) board and chips. This metal cage is the RF (radio frequency) shield and cannot be legally removed. There is little clearance here, and the ST Clock board uses it all. *Extreme* care must be taken to isolate the unit electrically and physically, or else *severe* damage will result. The package includes some strips of insulating material to provide the required isolation.

The ST Clock consists of a circuit board, a pair of nickel-cadmium batteries and a battery clip. The only function of the product is to send power to the ST keyboard processor chip, which is where the clock is actually located. The batteries recharge during normal use of the ST and are supposed to power the clock for as long as three weeks between uses.

I am happy with the ST Clock. It does the job as advertised. Installation is easy, even though a lot of care must be exercised.

ST New Products

By GREGG PEARLMAN, ANTIC ASSISTANT EDITOR

THREE FROM BECKEMEYER

Beckemeyer Development Tools' **AnsiTerm** ($24.95), an ANSI terminal emulator, lets your ST perform the functions of one of the most widely-used terminals, using the ANSI X3.64 protocol, with the additional capabilities of automatic file transfer and printing. In addition to such file transfer protocols as XMODEM and ASCII text, AnsiTerm also provides Kermit and CompuServe "B" (which uses larger blocks for greater speeds and prevents timeouts by informing AnsiTerm of any delays).

In this unprotected program, the keypad and cursor keys function like a VT100 or VT52 keypad. Each function key can have two strings of keys attached to it, and all transmission rates supported by TOS can be used, from 50 to 19,200 baud.

The **Hard Disk Accelerator** ($39.95) is a disk-caching system that speeds up your computer by speeding up the disk access. Common tasks such as starting a program or searching a database often happen 100% faster, with peak performance over 300% faster. The Hard Disk Accelerator combines RAM access with hard disk access to boost average disk performance. The program is automatic: it can be used effectively with a small amount of memory, works with copy protected software and can be used with large programs.

MT C-Shell ($129.95), a UNIX-like multitasking, multiuser TOS-compatible operating system, features electronic mail and print spooling and supports networking.

Beckemeyer Development Tools, 478 Santa Clara Avenue, Oakland, CA 94610. (415) 452-1129. PRESS.
CIRCLE **226** ON READER SERVICE CARD

STAR 24-PIN PRINTER

Print out drafts at 300 characters per second (cps) and letter quality documents at 100 cps with the **NB-15** from Star Micronics. The Prestige font is built in, but typefaces such as Letter Gothic, Courier and Orator are available on cartridges to be inserted into printer slots. Use front panel controls to select page length, print pitch, typeface and draft/letter quality mode. And an expandable 16K print buffer helps you get work done fast.

$1,449. Star Micronics America, Inc., 200 Park Avenue, New York, NY 10166. (212) 986-6770, (714) 768-4340. PRESS.
CIRCLE **238** ON READER SERVICE CARD

CLASSIC IMAGES

In **Diablo** ($29.95), a unique maze-like arcade game, you'll try to arrange the convoluted, 240-section, 120-panel track to keep an ever-advancing ball on a continuous course.

Disk Library ($49.95) puts everything you need to get organized right at your fingertips. It files, categorizes, and cross-references each disk, folder and file in your library and automatically updates them as you add them to the library. Disk Library also lets you add your own comments.

Classic Image Inc., 510 Rhode Island Avenue, Cherry Hill, NJ 08002. (609) 667-2526. PRESS.
CIRCLE **240** ON READER SERVICE CARD

WORDPERFECT

Antic saw the new ST version of **WordPerfect**, the best selling and highest-rated full-feature word processor for the IBM PC, at CES in January. Clearly the most sophisticated word processor for the Atari ST, WordPerfect takes full advantage of the new 1, 2 and 4Mb Mega STs.

The Atari version features the best of both worlds: it's GEM-based, using menu bars and windows, but it also supports the full array of keyboard commands familiar to IBM WordPerfect users. Users moving from the IBM to the Atari version will also benefit from full file compatibility with WordPerfect 4.1.

The program uses high-speed assembly language routines for ultra-fast response times. It's faster than any other ST word processor—even ST Writer.

WordPerfect supports footnote and endnote compilation, full keystroke macros, automatic calculation of numeric tables with the built-in math mode, complete database merge capabilities, an outline feature, a nine-keyword sorting facility for alphabetizing lists, a 115,000 word dictionary, a five-level table of contents and index generator, a newspaper-style five-column display, a sophisticated thesaurus, a three-level undo capability and a virtual memory data system, allowing data to flow onto disk when computer memory is full.

$395. Word Perfect Corp., 288 West Center Street, Orem, UT 84057. (801) 225-5000. DEMO.
CIRCLE **225** ON READER SERVICE CARD

THREE FROM TIMEWORKS

Interested in three 90,000-word spell checkers, a 60,000-word integrated thesaurus and an integrated outliner? Then try **Word Writer ST**—especially if you're the kind of person who likes onscreen underlining, italics, boldface, light type, subscript, subscript, headers and footers, cut-and-paste and all standard features.

Or use the **SwiftCalc ST** spreadsheet for budgeting, financial planning and organizing data, especially if you need super high-resolution graphics, such as pie charts, vertical bar charts, scatter diagrams and hi-lo-close stock charts. The sideways option lets you print all columns vertically on one continuous sheet by automatically rotating your spreadsheet 90 degrees as it prints out.

Data Manager ST, a highly flexible filing and record-keeping system, lets you store, retrieve, sort, evaluate and update large amounts of information. Included are a built-in graphics package, a customized report writer and a label maker.

$79.95 each. Timeworks Inc., 444 Lake Cook Road, Deerfield, IL 60015. (312) 948-9200. PRESS.
CIRCLE **234** ON READER SERVICE CARD

MIDIPLAY

This real-time MIDI record/playback system simultaneously supports all 16 channels of MIDI information, including velocity ("touch"), both key and channel aftertouch, pitch bend, program changes and all 128 MIDI controllers (such as pedals). **MIDIPLAY** can store over 200,000 MIDI note/events—about three hours of music—in a megabyte of RAM.

$49.95. Electronic Music Publishing House, Inc., 2210 Wilshire Blvd., Santa Monica, CA 90403. (213) 455-2025. PRESS.
CIRCLE **235** ON READER SERVICE CARD

New ST product notices are compiled from information provided by the products' manufacturers. ***Antic*** *assumes no responsibility for the accuracy of these notices or the performance of the product. Each mention is followed by a code word indicating that, at press time,* ***Antic*** *had seen a FINAL marketable version, near-final BETA, earlier ALPHA, incomplete DEMO, or PRESS release.*

FAST ST BASIC

The first cartridge-based ST BASIC

Reviewed by David Plotkin

Fast ST BASIC from Computer Concepts is the first BASIC to be available in cartridge form. It is, without a doubt, the most full-featured version of BASIC that I have ever seen, including BASICs on mainframe computers. It comes complete with an excellent editor and lots of GEM support, all in a package which takes up virtually no memory. It does still suffer from some awkward spots and downright bugs, which will be difficult to fix since it is cartridge-based.

FEATURES

There are more keywords (commands) in Fast ST BASIC than is possible for me to cover. Fast ST BASIC offers:

- Full math support, with both single- and double-precision numbers and functions. Double precision does sacrifice some speed, but accuracy is amazing.
- Full file access, both random and sequential for bytes and records. Full device access and redirection of input and output.
- Advanced structured programming, with FUNCTIONs and PROCEDUREs supporting LOCAL variables and *passed parameters.*
- Full decision and looping commands, including FOR/NEXT, WHILE/WEND, IF/THEN/ELSE, REPEAT/UNTIL, CASE and GOSUB/GOTO.
- Access to system variables, such as drive numbers, free disk space, file attributes, keyboard rate, and time and date (including format conversions).
- Access to machine language subroutines by use of USR, CALL and LAUNCH to execute both GEM and non-GEM subroutines and applications.
- Direct access to all VDI graphics calls for circles, rectangles, points, lines, text, fills, markers, polygons, setting the palette, text color, graphics colors, setting of the text or graphics rectangles, and user-defined lines and patterns. All of these graphics commands are called by dedicated keywords, as opposed to ST BASIC's use of numbered calls.
- Information about screen height, width and resolution. The locations in memory of the current screen for viewing and the current screen for drawing are available. These do not have to be the same, and the ability to use and modify these values makes for easy page flipping animation.
- Ability to reserve safe memory that will not be overwritten by the program or other data.
- Full access to directories and paths, including making and deleting subdirectories (folders). Also handy is a command to load the current directory into a string, so it can be manipulated and printed out.

Fast ST BASIC has the capability to hold 10 programs in memory at the same time. It loads the programs into sections called segments. These segments can have programs loaded into them, run, or cleared out under program control, making dynamic chaining and merging of programs quite flexible.

Bit block transfer (blitting) is fully supported. Both use of GEM's MFDB Blitting and built-in commands which are simpler (but just a little slower) are possible. BASIC's built-in commands are easy to use and provide excellent animation potential. It also has full mouse support, including whether the mouse is visible, used by GEM, the coordinates of the pointer, and the button state. Cursor and screen control are also available under program control.

Commands in Fast ST BASIC support most of the GEM AES functions: Alert boxes, full window support including creation, display, redraw and removal of windows, file selector boxes, menu creation and display, horizontal and vertical sliders, rubber boxes, and full event management. It also features full error trapping and HELP keytrapping.

There are even some keywords I have never seen anywhere else. The EVAL function evaluates a BASIC string to produce a numeric or string result, making it a snap to design a simple spreadsheet, since any math functions entered in a cell can be evaluated by BASIC. Also handy is the EXEC command, which lets you execute a string

containing a valid BASIC statement.

Fast ST BASIC even supports in-line assembly code, because it includes its own assembler. 68000 mnemonics can be inserted right into your BASIC code, and the interpreter will assemble it into machine code at runtime. The Address and Data registers of the microprocessor are directly accessible from BASIC by use of pseudo variables with the same name, i.e. "PRINT A0" will print out the contents of Address register zero!

Also included is a full range of debugging tools, including TRACE and TRACKING. You can even slow down program execution so you can watch what is happening. TRACE single-steps through the program or can stop when a key sequence is pressed, allowing you to see where you are. TRACKING is more valuable, letting you define what variables you would like to see values for in a separate window. You can then set up the program to print the values after every statement, only when a special key is pressed, or only when a value changes.

A wide range of variable types is available. These include bytes, words and four-byte integers, as well as single- and double-precision real numbers. You can also use binary and hex notation, although this last feature is not documented in the manual.

You can access variables through the @ operator, which returns the memory address at which a variable is stored. This is useful for passing a pointer to a table in memory as required by certain GEM functions.

Finally, line numbers are entirely optional, and labels can be used instead.

DOCUMENTATION

Fast ST BASIC is accompanied by a 400-page manual, a quick reference card, and a disk of sample programs. The manual is arranged into two main sections. The first contains all the keywords except the GEM AES, and the other contains the GEM AES keywords. Other sections contain brief introductions on variable handling, the in-line assembler, the editor, and an excellent index.

The two sections containing keywords are arranged in strict alphabetical order. In the case of the main keywords, this can be mildly confusing because certain keywords appear before their concept has been explained. For example, ENDWHILE occurs long before WHILE, but the concept of the WHILE loop is not explained until you reach the WHILE command. In the case of the GEM AES keywords, alphabetical order makes very little sense. A better way would have been to arrange the AES keywords by category (windows, events, etc.) and then by the order you would actually use them. The Personal Pascal manual is arranged this way, and it works.

Each keyword includes a description and an example program fragment. A list of related keywords and GEM usage is also given. In general, the explanations are adequate, especially since more difficult concepts such as PROCEDUREs are given more lengthy treatment. The explanations for the GEM AES keywords are still too sketchy, and you'll find it necessary to study carefully the example programs. This problem is compounded by the poor ordering of the commands. "Object trees," necessary for dialog boxes, are ignored, leaving a large hole in the program's AES capabilities. Still, the treatment of AES is far superior to any other BASIC.

The overall order of the manual is a little strange. Important concepts such as file handling are left until the end of the manual, while complex subjects such as variable indirection are right in the front. There also doesn't seem to be any general information on strings and arrays, so beginners won't find any help in understanding these.

Computer Concepts' Fast ST BASIC is, without a doubt, the most full-featured BASIC I have ever seen. It comes complete with an excellent editor and lots of GEM support, all in a package which takes up virtually no memory.

THE EDITOR

Fast ST BASIC comes with a very good, flexible editor. It is menu-driven and features icons for easy control. Printing out the program is as simple as dragging the program icon on top of the printer icon. Saving and loading from disk is just as simple, or you can pull down a menu. A clipboard is also supported, and you can even print it out.

Under normal circumstances, there are two windows open on the desktop— the edit window and the output window. This allows you to view your program and its output on the screen at the same time. I like this arrangement. You can also call up an "immediate" window for executing immediate commands such as printing out the value of variables. Features of the editor include many functions found in word processors. Movement of the cursor can be by character, line, word, and page. You can swap letters and switch case, go to the top or bottom of the program, cut and paste, and search and replace. To aid in structuring, there is an auto-indent feature, so that each new line will be flush with the line above. You can easily merge two files, and prevent the SAVE function from overwriting existing files.

Strangely, there is no syntax checking during data entry, so that debugging must take place when you run the program.

PROBLEMS

Would that this were the perfect program! Unfortunately, it does have some frustrating bugs. Certain keywords, nota-

continued on next page

bly LPRINT (print to the printer) and STRING$ (fill a string with a character) simply don't work. BASIC doesn't recognize them as commands, and attempts to treat them as variables, generating all sorts of strange error messages. It is possible to work around them, but, as in the case of all bugs, these will cost you time and some hair.

BASIC's PEEK and POKE commands only allow you to look at single bytes. When you want to look at more than one byte at a time (for example, when you want the four-byte value at address $0462—the system timer) BASIC has what are called "indirection operators." These supposedly allow you to get the one, two or four bytes at any memory location.

What they actually do, more often than not, is crash your ST, requiring you to reset. This is because the indirection operators neglect to issue the command to put the microprocessor in supervisor mode, which is necessary to look at any memory location outside of a narrow range. In fact, quite a few of the sample programs crash the ST. The icon editor is an example. Another way to crash the ST is from the editor. Sometimes when you load a program, the listing is in the edit window in large letters. Just attempting to scroll through this listing may cause a crash. Finally, some programs will refuse to run, giving the error message "dodgy variable" (I am not making this up!). This error message (can you guess) is not documented in the manual.

Then there are the annoying problems. The GEM support provided does not allow for using dialog boxes. There are no commands to build a dialog box in the program and no way to load an external resource file. There are also no commands to return the state of an object in the dialog box, and no way to read the contents of editable fields. There is also no sound support except for direct data entry to the sound registers, but no information on what values or registers to use is provided. Fast ST BASIC is much more syntax sensitive than any other BASIC I have

Printing out a program is as simple as dragging the program icon on top of the printer icon. Saving and loading from disk is just as simple, or you can pull down a menu.

ever used. Keywords must be capitalized or they will be treated as variables (this is not documented). Something normally as harmless as an extra space after PRINT# can reward you with an error message. This is doubly confusing because the manual itself inserts the extra space after PRINTER#, OPENUP# and other keywords in the section on file handling. As a result, the examples in that section will not run.

SUMMARY

I like this language. It is not really for inexperienced users, due to the problems mentioned above, but it is extremely powerful. I also am puzzled as to how technical support will be provided. The company is based in England, and there is no phone number and no local distributor to turn to. It is not realistic to market a product for as much money as this one and not provide support.

Further, the utility of the language is limited by the fact that there is no runtime package, so someone else must own a copy of this BASIC to run an application you have written. Computer magazines will only print applications written in widely distributed languages or ones that are stand-alone (don't require the user to own a copy of the language). This one doesn't qualify. If, however, you want an excellent, full-featured BASIC and don't mind experimenting on your own, or have a hankering to play around with GEM in an interpreted language, then this language could work out well for you.

Fast ST BASIC
Computer Concepts
Gaddesden Place, Hemel Hempstead
Hertfordshire, England HP26EX
Cartridge $139.95

CIRCLE 201 ON READER SERVICE CARD

SOFTWARE LIBRARY

Antic type-in listing section includes every full-length program from this issue. Listings are easier to type and proofread, easy to remove and save in a binder if you wish.

DISK SUBSCRIBERS: Programs for 8-bit Atari computers can be used immediately. Just follow instructions in the accompanying magazine articles. ST Owners: See monthly disk's ST Help File for instructions on how to transfer programs to 3-1/2 inch disk.

TYPING SPECIAL ATARI CHARACTERS

Antic printed program listings leave a small space between each Atari Special Character for easier reading. Immediately below you will see the way **Antic** prints all the standard Atari letters and numbers, in upper and lower case, in normal and inverse video.

ABCDEFGHIJKLMNOPQRSTUVWXYZ
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
abcdefghijklmnopqrstuvwxyz
0123456789 0123456789

The Atari Special Characters and the keys you must type in order to get them are shown in the two boxes below.

NORMAL VIDEO

FOR THIS	TYPE THIS	FOR THIS	TYPE THIS
	CTRL ,		CTRL S
	CTRL A		CTRL T
	CTRL B		CTRL U
	CTRL C		CTRL V
	CTRL D		CTRL W
	CTRL E		CTRL X
	CTRL F		CTRL Y
	CTRL G		CTRL Z
	CTRL H		ESC ESC
	CTRL I		ESC CTRL -
	CTRL J		ESC CTRL =
	CTRL K		ESC CTRL +
	CTRL L		ESC CTRL *
	CTRL M		CTRL .
	CTRL N		CTRL ;
	CTRL O		ESC CTRL =
	CTRL P		ESC SHIFT CLEAR
	CTRL Q		ESC DELETE
	CTRL R		ESC TAB

INVERSE VIDEO

FOR THIS	TYPE THIS	FOR THIS	TYPE THIS
	Λ CTRL ,		CTRL X
	Λ CTRL A		CTRL Y
	Λ CTRL B		CTRL Z
	Λ CTRL C		ESC SHIFT DELETE
	Λ CTRL D		ESC SHIFT INSERT
	Λ CTRL E		ESC CTRL TAB
	Λ CTRL F		ESC SHIFT TAB
	Λ CTRL G		Λ CTRL .
	Λ CTRL H		Λ CTRL ;
	Λ CTRL I		Λ SHIFT =
	Λ CTRL J		ESC CTRL 2
	Λ CTRL K		ESC CTRL DELETE
	Λ CTRL L		ESC CTRL INSERT
	Λ CTRL M		
	Λ CTRL N		
	Λ CTRL O		
	Λ CTRL P		
	Λ CTRL Q		
	Λ CTRL R		
	Λ CTRL S		
	Λ CTRL T		
	Λ CTRL U		
	Λ CTRL V		
	Λ CTRL W		

Whenever the CONTROL key (CTRL on the 400/800) or SHIFT key is used, ***hold it down*** while you press the next key. Whenever the ESC key is pressed, *release* it before you type the next key.

Turn on inverse video by pressing the Reverse Video Mode Key . Turn it off by pressing it a second time. (On the 400/800, use the Atari Logo Key Λ instead.)

Among the most common program typing mistakes are switching certain capital letters with their lower-case counterparts—you need to look especially carefully at P, X, O and 0 (zero).

Some of Atari Special Characters are not easy to tell apart from standard alpha-numeric characters. Usually the Special Characters will be boxed. Compare the two sets of characters below:

SPECIAL	STANDARD
CTRL F	/
CTRL G	SHIFT +
CTRL N	SHIFT -
CTRL R	-
CTRL S	+

HOW TO USE TYPO ST

TYPO ST is the automatic proofreading program for checking **Antic's** ST BASIC type-in listings. It finds any program line where you made a typing mistake.

Type in TYPO ST and SAVE a copy to disk before you RUN it. Now type RUN in the command window and press the [RETURN] key, or click on RUN from the RUN menu.

TYPO ST first asks for the name of the file to check. Type the desired filename and press [RETURN]. (TYPO ST will proofread itself if you type TYPOST.BAS as the filename.) Next, TYPO ST asks where you want the TYPO table printed. Type [S] [RETURN] for Screen, or [P] [RETURN] for Printer.

TYPO ST now reads your ST BASIC program and prints out a table of four-number codes—and the line number for each code. Compare your printed TYPO ST table with the **Antic** TYPO ST table published at the end of the program you are checking. If any of your four-number codes don't match the magazine's codes, you have made a typing mistake somewhere in that line. Carefully recheck your line against the published version.

Antic uses a word processor to format ST BASIC listings for publication, so we can indent lines and make the program structure more understandable. ST BASIC doesn't allow indentation and will strip off any spaces between the line number and the first BASIC instruction. Therefore, TYPO ST ignores space characters and does not care how far instructions are spaced apart.

TYPO ST cannot determine if two different characters have been switched within a line. For example, PRINT and PRNIT will look the same to TYPO ST. However, ST BASIC itself catches this error and points it out to you.

```
1000   ' TYPO/ST, (c) 1986 Antic Publishing, by Bill Marquardt
1010    DISK=1: OUTPUT=2: TRUE=(-1): FALSE=0: CHECKSUMMING=TRUE
1020    TV=FALSE: PRINTER=FALSE
1030    print "File to Check:": input FILENAME$: print "Output on:"
1040    print "(S)creen or ": print "(P)rinter ": input DEVICE$
1050    if( DEVICE$="p" )or( DEVICE$="P" )then PRINTER=TRUE else TV=TRUE
1060    if TV then print "Checksum for file: ": print FILENAME$: print
1070    if PRINTER then lprint "Checksum for file: ";FILENAME$: lprint
1080    open "I", #DISK, FILENAME$
1090    while CHECKSUMMING
1100       LINENUMBER=0: CHECKSUM=0: gosub GETALINE
1110       DECIMAL=CHECKSUM: gosub DECTOHEX
1120       OUTPUT$=str$( LINENUMBER )+" :"+HI$+LO$
1130       if PRINTER then lprint OUTPUT$ else print OUTPUT$
1140    wend
1150    close DISK
1160   end
1170   GETALINE:
1180    BLINE$="": on error goto 1150
1190    GOTALINE=FALSE
1200    while not GOTALINE
1210       line input#DISK, BLINE$: if len( BLINE$ )>1 then GOTALINE=TRUE
1220    wend
1230    LINENUMBER=val( BLINE$ )
1240    for CHAR=1 to len( BLINE$ )
1250       OK=TRUE: CHARACTER$=mid$( BLINE$, CHAR, 1 )
1260       if CHARACTER$=" " then OK=FALSE
1270       if OK then CHECKSUM=CHECKSUM+asc( CHARACTER$+chr$( 0 ))
1280    next CHAR
1290   return
1300   DECTOHEX:
1310    DECIMAL=abs( DECIMAL )
1320    HI=int( DECIMAL/256 ): LO=( DECIMAL-( HI*256 ))
1330    HH=int( HI/16 ): HL=( HI-( HH*16 ))
1340    LH=int( LO/16 ): LL=( LO-( LH*16 ))
1350    HI$=chr$( 48+HH-( 7*( HH>9 )))+chr$( 48+HL-( 7*( HL>9 )))
1360    LO$=chr$( 48+LH-( 7*( LH>9 )))+chr$( 48+LL-( 7*( LL>9 )))
1370   return
```

1000 :110B	1060 :13E7	1120 :0A48	1180 :089A	1240 :079B	1300 :0352	1360 :0C29
1010 :0EA2	1070 :140E	1130 :1000	1190 :04C6	1250 :0AEB	1310 :0667	1370 :036B
1020 :071B	1080 :0713	1140 :0274	1200 :0680	1260 :08BB	1320 :0B13	
1030 :12D2	1090 :0661	1150 :0408	1210 :11B9	1270 :0F36	1330 :07E3	
1040 :10E6	1100 :0BBD	1160 :01FF	1220 :0273	1280 :03A8	1340 :0804	
1050 :11A2	1110 :09F0	1170 :034C	1230 :0716	1290 :036C	1350 :0C0E	

HOW TO USE TYPO II (8-BIT)

TYPO II automatically proofreads **Antic**'s type-in BASIC listings for 8-bit Atari computers. It finds the exact line where you made a program typing mistake.

Type in TYPO II and SAVE a copy to disk or cassette. Now type GOTO 32000. When you see the instruction on the screen, type in a single program line **without the two-letter TYPO II code** at the left of the line number. Press the [RETURN] key.

Your line will reappear at the bottom of the screen with a two-letter TYPO II code on the left. If this code is not exactly the same as the line code printed in the magazine, you mistyped something in that line.

To call back any line previously typed, type an asterisk [*] followed (without in-between spaces) by the line number, then press [RETURN]. When the complete line appears at the top of the screen, press [RETURN] again. This is also the way you use TYPO II to proofread itself.

To LIST your program, press [BREAK] and type LIST. To return to TYPO II, type GOTO 32000.

To remove TYPO II from your program, type LIST "D:FILENAME",0,31999 [RETURN] (Cassette owners LIST "C:). Type NEW, then ENTER "D:FILENAME"[RETURN](Cassette—ENTER "C:). Your program is now in memory without TYPO II and you can SAVE or LIST it to disk or cassette.

Don't type the TYPO II Codes!

```
WB 32000 REM TYPO II BY ANDY BARTON
VM 32010 REM VER. 1.0 FOR ANTIC MAGAZINE
HS 32020 CLR :DIM LINE$(120):CLOSE #2:CLO
   SE #3
BN 32030 OPEN #2,4,0,"E":OPEN #3,5,0,"E"
YC 32040 ? "↖":POSITION 11,1:? "TYPO II"
EM 32050 TRAP 32040:POSITION 2,3:? "Type
   in a program line"
HS 32060 POSITION 1,4:? " ":INPUT #2;LINE
   $:IF LINE$="" THEN POSITION 2,4:LIST B
   :GOTO 32060
XH 32070 IF LINE$(1,1)="*" THEN B=VAL(LIN
   E$(2,LEN(LINE$))):POSITION 2,4:LIST B:
   GOTO 32060
TH 32080 POSITION 2,10:? "CONT"
MF 32090 B=VAL(LINE$):POSITION 1,3:? " ";
NY 32100 POKE 842,13:STOP
CN 32110 POKE 842,12
ET 32120 ? "↖":POSITION 11,1:? " TYPO II 
   ":POSITION 2,15:LIST B
CE 32130 C=0:ANS=C
QR 32140 POSITION 2,16:INPUT #3;LINE$:IF
   LINE$="" THEN ? "LINE ";B;" DELETED":G
   OTO 32050
VV 32150 FOR D=1 TO LEN(LINE$):C=C+1:ANS=
   ANS+(C*ASC(LINE$(D,D))):NEXT D
WJ 32160 CODE=INT(ANS/676)
JW 32170 CODE=ANS-(CODE*676)
EH 32180 HCODE=INT(CODE/26)
BH 32190 LCODE=CODE-(HCODE*26)+65
HB 32200 HCODE=HCODE+65
IE 32210 POSITION 0,16:? CHR$(HCODE);CHR$
   (LCODE)
VG 32220 POSITION 2,13:? "If CODE does no
   t match press  RETURN  and edit line a
   bove.":GOTO 32050
```

edit sounds with your joystick

SOUND STICK

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LISTING 1

Don't type the TYPO II Codes!

```
TI 10 REM SOUND STICK
HP 20 REM BY WENDELL MOLLYCHECK
HA 30 REM (c) 1987, ANTIC PUBLISHING
VQ 40 GRAPHICS 0:POKE 710,0
GB 50 POKE 752,1
TE 60 IF STRIG(0)=0 AND A=0 AND D=10 AND
   X=14 THEN POSITION 31,3:? " "
BE 70 IF STRIG(0)=0 AND A=1 AND D=10 AND
   X=14 THEN POSITION 31,6:? " "
AW 80 IF STRIG(0)=0 AND A=2 AND X=14 AND
   D=10 THEN POSITION 31,9:? " "
KK 90 IF STRIG(0)=0 AND A=3 AND X=14 AND
   D=10 THEN POSITION 31,13:? " "
IO 100 X=STICK(0)
DZ 110 IF STRIG(0)=0 AND X=13 THEN D=D+1
HV 120 IF STRIG(0)=0 AND X=14 THEN D=D-1
JD 130 IF STRIG(0)=0 AND X=7 THEN C=C+1
CJ 140 IF STRIG(0)=0 AND X=11 THEN C=C-1
ZS 150 IF STRIG(0)=1 AND X=13 THEN B=B+1
DO 160 IF STRIG(0)=1 AND X=14 THEN B=B-1
XL 170 IF STRIG(0)=0 AND X=10 THEN A=0
MV 180 IF STRIG(0)=0 AND X=6 THEN A=1
RC 190 IF STRIG(0)=0 AND X=9 THEN A=2
NX 200 IF STRIG(0)=0 AND X=5 THEN A=3
LN 210 IF A<0 THEN A=0:GOTO 100
MO 220 IF B<0 THEN B=0:GOTO 100
NP 230 IF C<0 THEN C=0:GOTO 100
UY 240 IF D<0 THEN D=0:IF D>15 THEN D=15:
   ? D:GOTO 60
KC 250 SOUND A,B,C,D
KZ 260 POSITION 0,0:? "VOICE":POSITION 10
   ,0:? "PITCH":POSITION 18,0:? "TONE":PO
   SITION 25,0:? "VOLUME"
BO 270 IF A=0 THEN POSITION 0,3:? A,B,C,D
FG 280 IF A=1 THEN POSITION 0,6:? A,B,C,D
IY 290 IF A=2 THEN POSITION 0,9:? A,B,C,D
AD 300 IF A=3 THEN POSITION 0,13:? A,B,C,
   D
QU 310 GOTO 50
```

POKER MACHINE

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LISTING 1

Don't type the TYPO II Codes!

```
XH 2 REM THE POKER MACHINE
JD 4 REM BY JOE McMANUS
GI 6 REM (c) 1987, ANTIC PUBLISHING
PQ 8 REM (DO NOT RENUMBER THIS PROGRAM!)
KA 9 BRK=1:IF PEEK(53279)=5 THEN BRK=0
NE 10 DIM B(10),CARD$(10),SUIT$(10),HAND(5),FLUSH$(5),HAND$(6),H(10),X$(1),Y$(1),CHAR$(1),BUF$(320),BET(1)
ZP 11 MOV=ADR("hh[illegible]"):Y=47:B=5:FIN=0:Z=1
KY 12 DIM DRAW$(5):DECK=1589
RF 13 GRAPHICS 1:POKE 712,182:POKE 708,2:POKE 711,50:POKE 710,182:POKE 709,66:POKE 752,1
CZ 14 POSITION 8,3:? #6;"THE":POSITION 7,5:? #6;"POKER":POSITION 6,7:? #6;"MACHINE"
MJ 15 ? ,"      by":? ," Joe McManus":? :GOSUB 19000:GOSUB 25000:GOSUB 8000
FB 16 POSITION 8,3:? #6;"     ":POSITION 7,5:? #6;"     ":POSITION 6,7:? #6;"       "
EK 17 POSITION 1,0:? #6;"quarters":POSITION 17,0:? #6;"bet":POSITION 5,2:? #6;SCORE:POSITION 18,2:COLOR +64:? #6;BET
IO 18 POSITION 1,18:? #6;" HOW MANY QUARTERS ":? :? ,"←←←PRESS SPACE FOR QUARTERS":? :? ,"←PRESS START TO BEGIN"
CB 19 OPEN #1,4,0,"K:"
RS 20 POKE 731,255:REM KEY CLICK OFF
OE 21 GOSUB 6000
AZ 22 IF PEEK(53279)=6 AND SCORE>0 THEN 30
GA 24 IF CHAR$=" " THEN SCORE=SCORE+1:SOUND 0,80,10,6:GOSUB 1180:SOUND 0,0,0,0
UI 26 POKE 764,255:CHAR$="2":GOTO 21
OM 27 IF FIN=1 THEN 50
RW 30 GOSUB 2500:REM BETTING ROUTINE
MG 40 DRAW$=""
BE 50 FOR I=1 TO 5:GOSUB I*1000+100:NEXT I
MA 60 FOR I=1 TO 500:NEXT I
YP 100 CARD=CARD+1
GL 200 FOR Z=1 TO 5:GOSUB Z*1000
VD 202 HAND$(Z,Z)=CARD$(CARD,CARD):FLUSH$(Z,Z)=SUIT$(CARD,CARD)
YZ 203 CARD=CARD+1
MY 206 NEXT Z
SV 207 GOSUB 900:GOSUB 950
UN 265 GOSUB 800
PE 275 POKE 764,255:CHAR$=" "
TC 280 GOSUB 6000
AO 282 IF CHAR$="5" AND DRAW$="     " THEN FIN=2:GOTO 800
AX 284 IF CHAR$="1" THEN X=1:GOSUB 1100:GOSUB 400
DY 286 IF CHAR$="2" THEN X=2:GOSUB 2100:GOSUB 400
GZ 288 IF CHAR$="3" THEN X=3:GOSUB 3100:GOSUB 400
IY 290 IF CHAR$="4" THEN X=4:GOSUB 4100:GOSUB 400
LZ 292 IF CHAR$="5" THEN X=5:GOSUB 5100:GOSUB 400
AF 294 IF CHAR$="C" THEN 450
UW 296 IF CHAR$="D" AND DRAW$<>"     " THEN 500
PC 300 GOTO 280
UE 400 DRAW$(X,X)="D":RETURN
KJ 450 FOR I=1 TO 5:IF DRAW$(I,I)=" " THEN 465
MT 460 T=CARD:CARD=CARD-6+I:GOSUB I*1000
LE 462 CARD=T
OA 465 NEXT I:DRAW$="     ":GOTO 275
NR 500 FOR I=1 TO 5
WA 505 IF DRAW$(I,I)="D" THEN GOSUB I*1000:HAND$(I,I)=CARD$(CARD,CARD):FLUSH$(I,I)=SUIT$(CARD,CARD):CARD=CARD+1
GN 506 NEXT I
EW 510 FIN=2:GOSUB 900:GOSUB 950:GOTO 800
FX 750 REM TALLY HAND/CLEAR VARIABLES/CHECK MONEY/INCREMENT CARD
KP 751 IF ODDS=0 THEN 786
GT 760 GAIN=BET*(ODDS+1):FOR I=1 TO GAIN:SCORE=SCORE+1:SOUND 0,80,10,8:FOR J=1 TO 100:NEXT J:GOSUB 1180
UI 761 SOUND 0,0,0,0:NEXT I
XG 762 POSITION 7,18:? #6;"        ":GOTO 795
KY 786 IF SCORE=0 THEN POSITION 4,18:? #6;"YOU'RE BUSTED":? :? :? :GOTO 26000
MA 787 GOSUB 27000:GOTO 795
QU 788 IF PEEK(53279)=6 THEN CLR :POKE 53277,0:RUN
VR 791 GOTO 788
WE 795 BET=0:FIN=0:IF CARD>4 THEN FOR I=1 TO 5:GOSUB I*1000+100:NEXT I:GOSUB 20000:CARD=0
JN 796 GOSUB 1180:GOTO 30
HY 800 REM CHECK HAND
AW 802 ODDS=0
NK 803 POSITION 7,18:? #6;"        "
WL 805 IF FLUSH$="▲▲▲▲▲" THEN ODDS=8:GOTO 810:REM ▲ IS INVERSE-SHIFT "*"
BS 806 IF FLUSH$="■■■■■" THEN ODDS=8:GOTO 810:REM ■ IS INVERSE-SHIFT "."
XP 807 IF FLUSH$="▮▮▮▮▮" THEN ODDS=8:GOTO 810:REM ▮ IS INVERSE-SHIFT "="
UI 808 IF FLUSH$="♤♤♤♤♤" THEN ODDS=8:REM ♤ IS INVERSE-CTRL ";"
RS 810 IF HAND(1)=1 AND HAND(2)=10 AND HAND(3)=11 AND HAND(4)=12 AND HAND(5)=13 THEN STRAIGHT=4:GOTO 817
SX 813 STRAIGHT=0:FOR I=1 TO 4:IF HAND(I)+1=HAND(I+1) THEN STRAIGHT=STRAIGHT+1
GM 814 NEXT I
QU 817 IF STRAIGHT=4 AND ODDS=8 THEN ODDS=50:GOTO 860
JF 818 IF ODDS=8 THEN 860
KM 819 IF STRAIGHT=4 THEN ODDS=5:GOTO 860
DQ 820 IF HAND(1)=HAND(2) AND HAND(2)=HAND(3) AND HAND(3)=HAND(4) THEN ODDS=25
MK 822 IF HAND(2)=HAND(3) AND HAND(3)=HAND(4) AND HAND(4)=HAND(5) THEN ODDS=25
CO 824 IF ODDS=25 THEN 860
RL 826 IF HAND(1)=HAND(2) AND HAND(2)=HAND(3) AND HAND(4)=HAND(5) THEN ODDS=10
UN 828 IF HAND(1)=HAND(2) AND HAND(3)=HAND(4) AND HAND(4)=HAND(5) THEN ODDS=10
YZ 830 IF ODDS=10 THEN 860
ZF 832 IF HAND(1)=HAND(2) AND HAND(2)=HAND(3) THEN ODDS=3
DM 833 IF HAND(2)=HAND(3) AND HAND(3)=HAND(4) THEN ODDS=3
HT 834 IF HAND(3)=HAND(4) AND HAND(4)=HAND(5) THEN ODDS=3
GN 835 IF ODDS=3 THEN 860
ZV 840 IF HAND(1)=HAND(2) AND HAND(3)=HAND(4) THEN ODDS=2
EF 842 IF HAND(2)=HAND(3) AND HAND(4)=HAND(5) THEN ODDS=2
DD 844 IF HAND(1)=HAND(2) AND HAND(4)=HAND(5) THEN ODDS=2
```

continued on next page

```
GC 845 IF ODDS=2 THEN 860
JA 850 IF HAND(1)=1 AND HAND(2)=1 THEN ODDS=1:GOTO 860
ZL 851 IF FIN=2 THEN 750
ZU 852 RETURN
TB 860 POSITION 7,18:? #6;"winner"
ZZ 865 IF FIN=2 THEN 750
ZS 870 RETURN
SB 900 REM GIVES NUMBER VALUES TO FACE CARDS
OK 905 FOR I=1 TO 5
FH 910 IF HAND$(I,I)=CHR$(95) THEN HAND(I)=10:GOTO 920
OW 912 IF HAND$(I,I)="J" THEN HAND(I)=11:GOTO 920
VX 914 IF HAND$(I,I)="Q" THEN HAND(I)=12:GOTO 920
SV 915 IF HAND$(I,I)="K" THEN HAND(I)=13:GOTO 920
VF 916 IF HAND$(I,I)="A" THEN HAND(I)=1:GOTO 920
WG 917 HAND(I)=ASC(HAND$(I,I))-48
MT 920 NEXT I:RETURN
QV 950 REM SORTS HAND FROM LOW TO HIGH
NV 952 FOR I=1 TO 4
FY 954 F=1
SR 956 IF F=2 THEN RETURN
JP 957 FOR I1=5 TO I STEP -1
ZE 958 IF HAND(I1)>HAND(I1-1) THEN 966
IE 959 X=HAND(I1-1)
MZ 962 HAND(I1-1)=HAND(I1)
IO 964 HAND(I1)=X:F=2
BW 966 NEXT I1
HJ 968 NEXT I
ZT 970 RETURN
QU 1000 POKE 53248,48
ND 1010 FOR I1=1 TO 10:SOUND 1,120,10,8:NEXT I1:SOUND 1,0,0,0
ZC 1020 POSITION 1,8:? #6;CARD$(CARD,CARD):POSITION 2,10:PUT #6,ASC(SUIT$(CARD,CARD))
FD 1022 POSITION 3,12:? #6;CARD$(CARD,CARD):RETURN
ET 1100 POKE 53248,5
OD 1120 POSITION 1,8:? #6;" ":POSITION 2,10:? #6;" ":POSITION 3,12:? #6;" ":RETURN
OH 1180 IF SCORE>9 THEN B=4
RO 1181 IF SCORE>99 THEN B=3
WA 1182 IF SCORE<100 THEN POSITION 3,2:? #6;" ":B=4
CE 1183 IF SCORE<10 THEN POSITION 4,2:? #6;" ":B=5
JF 1185 POSITION 1,0:? #6;"quarters":POSITION 17,0:? #6;"bet":POSITION B,2:? #6;SCORE
IU 1186 POSITION 18,2:COLOR +64:? #6;BET
CB 1187 RETURN
OM 2000 POKE 53249,80
NE 2010 FOR I1=1 TO 10:SOUND 1,120,10,8:NEXT I1:SOUND 1,0,0,0
JD 2020 POSITION 5,8:? #6;CARD$(CARD,CARD):POSITION 6,10:PUT #6,ASC(SUIT$(CARD,CARD))
HM 2022 POSITION 7,12:? #6;CARD$(CARD,CARD):RETURN
FJ 2100 POKE 53249,5
FK 2120 POSITION 5,8:? #6;" ":POSITION 6,10:? #6;" ":POSITION 7,12:? #6;" ":RETURN
LA 2190 POSITION 8,18:? #6;"winner":RETURN
UP 2195 POSITION 8,18:? #6;"      ":RETURN
TV 2500 FOR II=1 TO 4:? :NEXT II:? :? ,"←PRESS SPACE TO BET":? ,"PRESS D TO DEAL"
TC 2520 POKE 764,255:CHAR$="":POSITION 1,18:? #6;"    BET PLEASE     ":GOSUB 6000
SK 2557 POKE 764,255:POSITION 1,18:? #6;"    bet please      ":GOSUB 6000
LZ 2558 IF CHAR$="D" AND BET THEN POSITION 4,18:? #6;"             ":GOSUB 2800:RETURN
KC 2559 IF CHAR$=" " THEN BET=BET+1:SCORE=SCORE-1:FOR I=15 TO 1 STEP -1:SOUND 3,40,10,I:GOSUB 1180:SOUND 3,0,0,0
JU 2560 IF SCORE=0 THEN POSITION 4,18:? #6;"             ":GOTO 2800
RE 2561 IF BET>7 THEN POSITION 4,18:? #6;"             ":GOTO 2800
UB 2562 CHAR$="X":GOTO 2520
VY 2800 ? :? ,"   DISCARD":? "  1   2     3     4     5":? "  S=STAND   C=CANCEL   D=DRAW":RETURN
QN 3000 POKE 53250,112
NF 3010 FOR I1=1 TO 10:SOUND 1,120,10,8:NEXT I1:SOUND 1,0,0,0
PJ 3020 POSITION 9,8:? #6;CARD$(CARD,CARD):POSITION 10,10:PUT #6,ASC(SUIT$(CARD,CARD))
GS 3022 POSITION 11,12:? #6;CARD$(CARD,CARD):RETURN
AT 3100 POKE 53250,5
VK 3120 POSITION 9,8:? #6;" ":POSITION 10,10:? #6;" ":POSITION 11,12:? #6;" ":RETURN
UR 4000 POKE 53251,144
NG 4010 FOR I1=1 TO 10:SOUND 1,120,10,8:NEXT I1:SOUND 1,0,0,0
DB 4020 POSITION 13,8:? #6;CARD$(CARD,CARD):POSITION 14,10:PUT #6,ASC(SUIT$(CARD,CARD))
JF 4022 POSITION 15,12:? #6;CARD$(CARD,CARD):RETURN
BJ 4100 POKE 53251,5
AL 4120 POSITION 13,8:? #6;" ":POSITION 14,10:? #6;" ":POSITION 15,12:? #6;" ":RETURN
SM 5000 POKE 53252,184:POKE 53253,192:POKE 53254,200
NH 5010 FOR I1=1 TO 10:SOUND 1,120,10,8:NEXT I1:SOUND 1,0,0,0
NO 5020 POSITION 17,8:? #6;CARD$(CARD,CARD):POSITION 18,10:PUT #6,ASC(SUIT$(CARD,CARD))
LS 5022 POSITION 19,12:? #6;CARD$(CARD,CARD):RETURN
LE 5100 POKE 53252,5:POKE 53253,5:POKE 53254,5
SQ 5120 POSITION 17,8:? #6;" ":POSITION 18,10:? #6;" ":POSITION 19,12:? #6;" ":RETURN
PR 6000 CHAR=0:I=0
JC 6002 POKE 77,0:IF BRK THEN POKE 16,112:POKE 53774,112
LC 6005 I=I+1
XL 6010 IF PEEK(764)<>255 THEN GET #1,CHAR:CHAR$=CHR$(CHAR)
JG 6011 IF CHAR=0 AND I<10 THEN 6005
AK 6020 RETURN
HO 8000 IF R=2 THEN POKE 53277,3:RETURN
AP 8005 A=PEEK(106)-16:POKE 54279,A:PMBASE=256*A:POKE 559,46:POKE 53277,3:POKE 623,4
YK 8006 BUF$(1)="♥":BUF$(320)=BUF$:BUF$(2)=BUF$
DL 8010 JNK=USR(MOV,ADR(BUF$),PMBASE+384,320):JNK=USR(MOV,ADR(BUF$),PMBASE+704,320)
OQ 8020 FOR I=704 TO 707:POKE I,14:NEXT I
IV 8025 BUF$(1)="?":BUF$(320)=BUF$:BUF$(2)=BUF$
XO 8030 FOR I=0 TO 4
BF 8035 I1=384+128*I
TO 8040 JNK=USR(MOV,ADR(BUF$),PMBASE+I1+Y+1,20):NEXT I
ZQ 8050 FOR I=53256 TO 53259:POKE I,3:NEXT I:POKE 53260,255
AY 8060 RETURN
KZ 19000 JNK=USR(MOV,ADR("h[illegible]"),1536,49)
ZP 19500 POKE 77,0:IF BRK THEN POKE 16,112:POKE 53774,112
XA 20000 REM SHUFFLING ROUTINE
AF 20010 POSITION 5,10:? #6;"shuffling"
RB 20040 A=USR(1536)
XX 20050 FOR X=1 TO 10
KU 20051 IF X/3=INT(X/3) THEN FOR A=250 TO 100 STEP -10:SOUND 0,A,0,14:NEXT A:SOUND 0,0,0,0
JG 20052 B(X)=PEEK(DECK+X)
OV 20055 K=1
IG 20060 IF B(X)<=13 THEN 20075
BU 20065 B(X)=B(X)-13:K=K+1
AH 20070 GOTO 20060
RI 20075 H(X)=B(X):ON B(X) GOTO 20080,20085,20090,20095,20100,20105,20110,20115,20120,20125,20130,20135,20140
```

```
SU 20080 X$="A":GOTO 20145
NK 20085 X$="2":GOTO 20145
NA 20090 X$="3":GOTO 20145
OK 20095 X$="4":GOTO 20145
MP 20100 X$="5":GOTO 20145
NZ 20105 X$="6":GOTO 20145
NP 20110 X$="7":GOTO 20145
OZ 20115 X$="8":GOTO 20145
OP 20120 X$="9":GOTO 20145
FQ 20125 X$="_":GOTO 20145
VY 20130 X$="J":GOTO 20145
ZW 20135 X$="Q":GOTO 20145
WN 20140 X$="K":GOTO 20145
KJ 20145 ON K GOTO 20150,20155,20160,2016
   5
KO 20150 Y$="◘":GOTO 20170:REM INVERSE-CT
   RL ";"
GK 20155 Y$="▯":GOTO 20170:REM INVERSE-SH
   IFT "="
EZ 20160 Y$="▮":GOTO 20170
IA 20165 Y$="◙"
RO 20170 CARD$(X)=X$:SUIT$(X)=Y$
OM 20175 NEXT X
AD 20177 POSITION 5,10:? #6;"            "
EH 20180 RETURN
AD 25000 J=(PEEK(106)-8)*256
SM 25020 IF J<=PEEK(144)+256*PEEK(145) TH
   EN ? #6;"PROGRAM TOO LARGE TO REDEFINE
    CHARS":GOTO 25120
PD 25030 JNK=USR(MOV,57344,J,1024)
HO 25050 J=J+472
NE 25060 TRAP 25070:DIM ST$(40):TRAP 4000
   0
LF 25070 ST$="♥6▶▶>┼◢♥♥┴<◀◀<┴♥♥┼┼ww◢┼♥♥┴<
   ◀◀┴<♥♥&i)))&♥"
TL 25090 JNK=USR(MOV,ADR(ST$),J,40)
SV 25110 POKE 756,PEEK(106)-8
HM 25999 RETURN
RN 26000 ? "          PLAY AGAIN? (Y OR N)
   ":GET #1,ANS
OY 26005 IF ANS=89 THEN 26010
ZY 26007 GRAPHICS 0:END
QE 26010 CLOSE #1:POSITION 4,18:? #6;"
         ":BET=0:FIN=1:? CHR$(125)
TX 26012 FOR I=1 TO 5:GOSUB I*1000+100:NE
   XT I:GOSUB 20000:CARD=0:GOTO 16
YE 27000 FOR S=50 TO 120
TE 27020 SOUND 0,S,10,10:NEXT S
GA 27030 SOUND 0,0,0,0:RETURN
```

LISTING 2

```
FJ 10 REM THE POKER MACHINE
KQ 20 REM BY JOE McMANUS
HA 30 REM (c) 1987, ANTIC PUBLISHING
TK 35 REM CREATES LINES 11, 19000 AND 250
   70
CQ 40 REM (LINES 10-220 MAY BE USED WITH
   OTHER BASIC LOADERS IN THIS ISSUE.
IS 45 REM CHANGE LINE 70 AS NECESSARY.)
MG 50 DIM FN$(20),TEMP$(20),AR$(93)
HO 60 DPL=PEEK(10592):POKE 10592,255
WO 70 FN$="D:LINES.LST":REM THIS IS THE N
   AME OF THE DISK FILE TO BE CREATED
YS 80 GRAPHICS 0:? "      ANTIC'S GENERIC
   BASIC LOADER"
CD 90 ? ,"BY CHARLES JACKSON"
PW 100 POKE 10592,DPL:TRAP 170
PO 110 ? :? :? "Creating ";FN$:? "...plea
   se stand by."
LQ 120 RESTORE :READ LN:LM=LN:DIM A$(LN):
   C=1
BK 130 AR$="":READ AR$
XW 140 FOR X=1 TO LEN(AR$) STEP 3:POKE 75
   2,255
DG 150 LM=LM-1:POSITION 10,10:? "(Countdo
   wn...T-";INT(LM/10);")      "
UY 160 A$(C,C)=CHR$(VAL(AR$(X,X+2))):C=C+
   1:NEXT X:GOTO 130
MZ 170 IF PEEK(195)=5 THEN ? :? :? "◘TOO
   MANY DATA LINES!":? "CANNOT CREATE FIL
   E!":END
CZ 180 IF C<LN+1 THEN ? :? "◘TOO FEW DATA
    LINES!":? "CANNOT CREATE FILE!":END
AL 200 OPEN #1,8,0,FN$
PP 210 POKE 766,1:? #1;A$;:POKE 766,0
AF 220 CLOSE #1:GRAPHICS 0:? "█COMPLETED█
   "
HU 1000 DATA 217
YM 1010 DATA 049049032077079086061065068
   0820400341041041332411041332401041332
   13104133212104133239104133238
PR 1020 DATA 160000177240145212230212208
   0022302132302402080022302411982382082
   34198239016230096034041058089
KU 1030 DATA 061052055058066061053058070
   0730780610480580900610491550490570480
   48048032074078075061085083082
NR 1040 DATA 040077079086044065068082040
   0341042161690001620101570530062022082
   50160010173010210201053144003
XI 1050 DATA 076013006133203162010189053
   0061972032402351690002022082441652031
   53053006136208222096034041044
GI 1060 DATA 049053051054044052057041155
   0500530480550480320830840360610340000
   54127127062028000000000024060
CZ 1070 DATA 126126060024000000028028119
   1190080280000000240601261260240600000
   00038105041041041038000034155
```

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fast, easy fractal displays

DOT-HOPPER

Article on page 43

LISTING 1

Don't type the TYPO II Codes!

```
FE 2 REM HOPPER (ATARI VERSION)
RZ 4 REM BY DOUGLAS SKRECKY
NG 6 REM (c) 1987 ANTIC PUBLISHING
GA 10 GOSUB 600:REM INITIALIZATION
KE 20 TRAP 20:GOSUB 100
ED 30 IF X>LEFT AND X<RIGHT AND Y>TOP AND
    Y<BOTTOM THEN PLOT SCALE*(X-LEFT),SCA
   LE*(Y-TOP)
EG 40 XX=Y+SGN(X)*(MX*X-CX):Y=CY-X:X=XX:I
   F PEEK(CH)=CLEAR THEN 30
QG 50 IF PEEK(CH)=SKEY THEN GOSUB 300
QM 60 IF PEEK(CH)=SPACEBAR THEN GOSUB 500
KI 70 IF PEEK(CH)<>ESCAPE THEN POKE CH,CL
   EAR:GOTO 30
RY 80 GOTO 20
HS 100 REM MAIN MENU
UJ 110 GRAPHICS 0:POKE 710,128:? "███████
   ███████████MENU████████████████████"
YU 120 IF SCALE<>0 THEN ? " PARAMETERS US
   ED ARE: ";NAME$:? "  ";LEFT;",";RIGHT;
```

continued on next page

```
   ",";TOP;",";CY;",";MX;",";CX
TR 130 ? :? " Press ■L■ to Load fractal p
   icture":? :? " Press ■C■ to Create fra
   ctal picture"
OO 140 POKE 752,1:? :? :? " (Press ESCAPE
    to return to MENU)":POKE 752,0:SCALE=
   0
OJ 150 IF PEEK(CH)=LKEY THEN GOSUB 400:FO
   R X=1 TO 1000:NEXT X:GOTO 100
AU 160 IF PEEK(CH)<>CKEY THEN 150
EE 170 ? "↖          ■CREATE■A■FRACTAL■IMAGE■"
NM 175 ? :? "          Try Parameters:":? "
          :-1.5,1.5,-1,-.2,.2,.2":? "
    :-15,16,-12,-1.1,.9,-1"
OQ 180 POKE CH,CLEAR:? :? "    LEFT BORDER
     =";:INPUT LEFT
IO 190 ? "    RIGHT BORDER =";:INPUT RIGHT
   :IF RIGHT<=LEFT THEN ? "↰↑↰";:GOTO 190
SD 200 ? "    TOP BORDER    =";:INPUT TOP:B
   OTTOM=TOP+(RIGHT-LEFT)*191/319:? "    B
   OTTOM BORDER=";BOTTOM
GX 210 ? "    CY =";:INPUT CY:? "    MX =";
   :INPUT MX:? "    CX =";:INPUT CX:X=0:Y=
   0
OH 220 SCALE=319/(RIGHT-LEFT):? :? "Press
    SPACEBAR to turn screen on/off":? :PO
   KE 752,1
BT 230 ? :? " Press ■S■ To Save Image To
   Disk":? :? :? :? "  Press any key to c
   ontinue"
SU 231 ? "or ESC to return to Main Menu."
XB 232 POKE CH,CLEAR
BR 233 IF PEEK(CH)=28 THEN 100
AJ 234 IF PEEK(CH)=CLEAR THEN 233
TS 240 GRAPHICS 8+16:POKE 710,0:COLOR 1:P
   OKE CH,CLEAR:RETURN
OF 300 REM SCREEN SAVE ROUTINE
NO 302 POKE CH,CLEAR:GRAPHICS 8+32:POKE 7
   10,0
XV 303 ? "SAVE filename";:IO=8
UM 304 INPUT NAME$:GOSUB 640:GRAPHICS 8+8
   *IO-16:POKE 710,0
ES 310 CLOSE #1:OPEN #1,IO,0,FILENAME$
XN 320 POKE 850,IO+3:POKE 852,PEEK(88):PO
   KE 853,PEEK(89):POKE 856,0:POKE 857,30
ZW 330 D=USR(ADR("hhh■LV■"),16):IF IO=8 T
   HEN ? #1;"■(■■";
HH 340 CLOSE #1:RETURN
DV 400 REM SCREEN LOAD ROUTINE
YQ 410 POKE CH,CLEAR:? :? "File to Load";
   :IO=4:GOTO 304
NT 500 REM TOGGLE SCREEN ON/OFF
QW 510 IF PEEK(SDMCTL)=34 THEN POKE SDMCT
   L,0:RETURN
RW 520 POKE SDMCTL,34:RETURN
MX 600 REM INITIALIZATION
XX 610 DIM NAME$(19),FILENAME$(19):FILENA
   ME$="D1:":SDMCTL=559
KN 630 CH=764:ESCAPE=28:CLEAR=255:SPACEBA
   R=33:SKEY=62:LKEY=0:CKEY=18:RETURN
OR 640 IF LEN(NAME$)<3 THEN NAME$(LEN(NAM
   E$)+1)="    "
OB 650 IF NAME$(1,1)="D" AND (NAME$(2,2)=
   ":" OR NAME$(3,3)=":") THEN FILENAME$=
   NAME$:GOTO 660
OS 660 FILENAME$(4)=NAME$
ZQ 670 RETURN
```

game of the month

A-ROGUE

Article on page 30

LISTING 1

Don't type the TYPO II Codes!

```
UP 1 REM ATARI ROGUE
RZ 2 REM BY ROBERT JUNG
GH 5 REM (c) 1987, ANTIC PUBLISHING
ZI 6 REM DO NOT RENUMBER THIS PROGRAM!
TT 10 DIM CON$(32),WP$(100),AR$(100),PT$(
   70),MZ$(100),Z$(100),L$(40),D(30),N$(2
   0),CIO$(7),X$(1)
FL 20 POKE 82,0:CLOSE #1:CLOSE #2:OPEN #2
   ,4,0,"K:":CIO$="hhh■LV■":YN=2000
PZ 100 POKE 106,PEEK(106)-8:GRAPHICS 0:PO
   KE 16,64:POKE 53774,64
GD 110 CLOSE #1:OPEN #1,4,0,"D:AROGUE.FNT
   "
VN 112 IOCB=848:POKE IOCB+4,0:POKE IOCB+5
   ,PEEK(106)+4:POKE IOCB+8,0:POKE IOCB+9
   ,4:POKE IOCB+2,7
FW 114 A=USR(ADR(CIO$),16):CLOSE #1:POKE
   756,PEEK(106)+4:POKE 709,15:POKE 710,0
ZN 1000 WP$="dagger    handaxe   mace
     sword     mace +1   sword +1  scythe
    +1 sai +2    mace +2   sword +2  "
SS 1002 AR$="leather   padded    ring mai
   l scale mailchain mailbronze    banded
      splint    field     plate mail"
HC 1004 PT$="green     black     purple
     red       crystal   blue      mauve
     "
NO 1020 ? "↖↓↓↓↓■■AtariROGUE■■":? :?
TP 1022 ? "Your name";:INPUT N$:IF LEN(N$
   )<20 THEN N$(LEN(N$)+1,20)="
     "
TX 1025 IF N$="                    " THEN
    1022
CD 1030 ? "Load a game? ";:GOSUB YN:IF L$
   ="Y" THEN GOSUB 1650
IF 1040 FOR I=1 TO 5:SE=INT(RND(0)*7):BY=
   INT(RND(0)*7):MZ$=PT$(SE*10+1,SE*10+10
   ):L$=PT$(BY*10+1,BY*10+10)
SU 1042 PT$(SE*10+1,SE*10+10)=L$:PT$(BY*1
   0+1,BY*10+10)=MZ$:NEXT I
MF 1044 D(1)=15:D(2)=1:D(3)=2:D(4)=2:D(5)
   =1:D(7)=0:D(10)=1:D(11)=1
UP 1046 D(12)=1:D(13)=60:D(14)=60:D(15)=1
   5:D(16)=0
RK 1050 L$="♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥
   ♥♥♥":SE=INT(RND(0)*32)+1:? :? :? "Desc
   ending the stairs..."
FX 1052 CON$=L$:MZ$=L$:GOTO 1062
TG 1060 SE=INT(RND(0)*32)+1:IF L$(SE,SE)=
   "♥" THEN 1060
DM 1062 BY=INT(RND(0)*4):I=2:F=8:IF BY=0
   THEN BY=-8:I=1:F=4
GT 1064 IF BY=2 THEN BY=8:I=4:F=1
NL 1066 IF BY=3 THEN BY=-1:I=8:F=2
HB 1068 IF ((SE/8=INT(SE/8)) AND BY=1) OR
    ((SE=1 OR SE=9 OR SE=17 OR SE=25) AND
    BY=-1) THEN 1062
SA 1069 IF (SE<9 AND BY=-8) OR (SE>24 AND
    BY=8) THEN 1062
ZM 1070 IF L$(SE+BY,SE+BY)="H" THEN 1080
BF 1072 L$(SE,SE)="H":L$(SE+BY,SE+BY)="H"
   :MZ$(SE,SE)=CHR$(ASC(MZ$(SE))+I):MZ$(S
   E+BY,SE+BY)=CHR$(ASC(MZ$(SE+BY))+F)
```

```
BF 1074 SE=SE+BY:GOTO 1062
QG 1080 IF L$<>"HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH" THEN 1060
QP 1082 FOR I=1 TO 32:F=(RND(0)<0.4):MZ$(I,I)=CHR$(ASC(MZ$(I))+128*F):NEXT I
XO 1084 I=INT(RND(0)*32)+1:IF ASC(MZ$(I))<128 THEN 1084
MG 1086 D(25)=I:BY=INT(RND(0)*32)+1:D(6)=BY:IF ABS(BY-I)<25 THEN 1084
VZ 1088 CON$="NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN":DATA W,A,M,P
NP 1090 FOR SE=1 TO 2:RESTORE 1088:FOR I=1 TO 4:READ Z$:IF RND(0)>0.6 THEN F=INT(RND(0)*32)+1:CON$(F,F)=Z$
BZ 1091 NEXT I:NEXT SE
PU 1092 IF RND(0)>0.45 THEN FOR I=1 TO INT(RND(0)*2)+1:F=INT(RND(0)*32)+1:CON$(F,F)="P":NEXT I
UL 1094 FOR I=1 TO INT(RND(0)*5)+5:F=INT(RND(0)*32)+1:CON$(F,F)="G":NEXT I
JF 1098 X=D(25):CON$(X,X)="S":GOSUB 1900:I=D(6):GOTO 1212
JF 1100 X=D(6):IF D(2)=24 AND CON$(X,X)="S" THEN 1500
DW 1101 POKE 702,64:POKE 694,0:GET #2,A:L$=CHR$(A):D(14)=D(13)
JG 1102 IF L$="↑" OR L$="-" OR L$="_" OR L$="↓" OR L$="=" OR L$="|" OR L$="←" OR L$="+" OR L$="\" THEN 1200
SQ 1104 IF L$="→" OR L$="^" OR L$="*" THEN 1200
TK 1106 IF L$="I" OR L$="R" OR L$="D" OR L$="C" OR L$="Q" OR L$="S" OR L$="Q" OR L$="L" OR L$="E" THEN 1110
OI 1108 GOTO 1100
YJ 1110 IF (L$="E" AND D(3)=0) OR (L$="D" AND CON$(D(6),D(6))<>"S") THEN 1100
HT 1115 IF L$<>"R" THEN GOSUB 1942:GOSUB 1905
DJ 1120 IF L$<>"I" THEN 1130
ZM 1122 ? "Health [";D(15);"]:";D(1);"  Food:";D(3);"   Gold:";D(7)
MM 1124 X=D(5):? "Armr:";AR$((X-1)*10+1,X*10);"  Wp:";
WT 1125 X=D(4):IF D(16) THEN ? "Cursed ";
HD 1126 ? WP$((X-1)*10+1,X*10)
MN 1128 ? "Heal:";D(10);"   Teleport:";D(11);"   Fireball:";D(12):? "↑↑↑";:GOSUB 1945:GOTO 1100
JG 1130 IF L$<>"R" THEN 1140
IZ 1132 GOSUB 1941:D(1)=D(1)+1:D(13)=D(13)-1:GOSUB 1960:IF RND(0)<0.05 THEN 1350
ZA 1134 GOSUB 1945:GOTO 1100
DD 1140 IF L$<>"C" THEN 1160
YF 1142 IF D(10)=0 AND D(11)=0 AND D(12)=0 THEN ? "You have no spells!":? "↑";:GOSUB 1945:GOTO 1100
XG 1144 GOSUB 1470:? "↑↑↑";
WD 1146 IF L$="F" THEN ? "The fireball dissipates.":? "↑";:GOSUB 1945:GOTO 1100
TX 1147 IF L$="T" THEN I=1:GOTO 1270
RM 1148 IF L$="H" THEN I=2:GOTO 1272
FJ 1160 IF L$<>"E" THEN 1170
CY 1162 IF D(3)=0 THEN ? "You have no food.":GOTO 1168
NP 1164 L$=">HIC!<     >Munch<    McRation?":D(3)=D(3)-1:D(13)=D(13)+105:D(1)=D(1)+11
DH 1166 X=INT(RND(0)*3)+1:? L$((X-1)*10+1,X*10)
KF 1168 ? "↑";:GOSUB 1960:GOSUB 1945:GOTO 1100
FW 1170 IF L$<>"D" THEN 1180
MK 1172 X=D(6):IF CON$(X,X)<>"S" THEN ? "There are no stairs.":? "↑";:GOSUB 1945:GOTO 1100
JQ 1174 D(2)=D(2)+1:D(1)=D(1)+3:D(15)=12+3*D(2):GOSUB 1960:GOTO 1050
HI 1180 IF L$="S" THEN 1600
VH 1182 IF L$="L" THEN GOSUB 1650:? "↑";:GOSUB 1945:GOTO 1100
CW 1184 ? "Quit! Are you sure? ";:GOSUB YN:IF L$="Y" THEN 1515
EL 1186 ? "↑↑";:GOSUB 1945:GOTO 1100
NN 1200 GOSUB 1920:I=0:F=-8:IF L$="→" OR L$="*" OR L$="^" THEN I=1:F=1
EL 1202 IF L$="↓" OR L$="=" OR L$="|" THEN I=2:F=8
UY 1204 IF L$="←" OR L$="+" OR L$="\" THEN I=3:F=-1
GB 1206 IF D(20+I)=0 THEN 1100
RJ 1210 D(13)=D(13)-1:I=D(6)+F:D(6)=I
SE 1212 IF ASC(CON$(I))>127 THEN GOSUB 1930:CON$(I,I)=CHR$(ASC(CON$(I))-128)
OE 1214 POKE 752,0:GOSUB 1940:IF D(13)>15 AND INT(D(13)/3)=D(13)/3 THEN D(1)=D(1)+1:GOSUB 1960
NF 1220 X=D(6):IF RND(0)<0.12 OR (D(2)=24 AND CON$(X,X)="S") THEN 1350
XM 1230 Z$=CON$(I,I):IF Z$="N" OR Z$="S" THEN GOSUB 1960:GOTO 1100
EN 1240 GOSUB 1941:GOSUB 1905:X=D(6):CON$(X,X)="N":IF Z$<>"F" THEN 1250
FF 1242 ? "You find a ration of food.":D(3)=D(3)+1:GOTO 1320
LF 1250 IF Z$<>"G" THEN 1260
KE 1252 F=INT(RND(0)*(D(2)+1))*3+4*D(2):? "You find ";F;" pieces of gold.":D(7)=D(7)+F:GOTO 1320
SA 1260 IF Z$<>"P" THEN 1280
RC 1261 I=INT(RND(0)*7)+1:IF I=6 AND D(3)=0 THEN 1261
QC 1262 L$=PT$((I-1)*10+1,I*10):GOSUB 1950
PI 1263 ? "You find a ";L$;" potion.":? "Do you drink it? ";:GOSUB YN
WW 1264 IF L$<>"Y" THEN GOSUB 1955:GOTO 1320
DQ 1266 IF I<>7 THEN 1270
YD 1267 DATA Choice of a New Generation.,Real Thing.,UnPotion.
MV 1268 RESTORE 1267:X=INT(RND(0)*3)+1:FOR I=1 TO X:READ L$:NEXT I:? "It's The ";L$:GOTO 1320
TZ 1270 IF I=1 THEN GOSUB 1945:D(6)=INT(RND(0)*32)+1:I=D(6):GOTO 1212
DO 1272 IF I=2 THEN ? "You feel much healthier.":D(1)=D(15):D(13)=D(13)+45:GOTO 1320
TP 1274 IF I=3 THEN ? "*PAIN* wracks your body!":D(1)=D(1)-INT(RND(0)*15)-5:GOSUB 1960:GOTO 1320
DV 1276 IF I=4 THEN 1350
ON 1277 IF I=5 THEN ? "Your endurance has increased!":D(15)=D(15)+3:GOTO 1320
UD 1278 F=INT(RND(0)*3)+1:IF F>D(3) THEN 1278
MY 1279 ? "Your food rots!":D(3)=D(3)-F:GOTO 1320
WY 1280 IF Z$<>"W" THEN 1290
BO 1282 I=INT(D(2)/3.1)+1:I=INT(RND(0)*3)+I:L$=WP$((I-1)*10+1,I*10):GOSUB 1950
VV 1283 D(25)=0:X=LEN(L$):IF L$(X-2,X-2)=" " THEN L$=L$(1,X-3):D(25)=1
PG 1284 ? "You find a ";L$:X=D(4):? "You have a ";WP$((X-1)*10+1,X*10):? "Do you take it? ";:GOSUB YN
XG 1285 IF L$<>"Y" THEN GOSUB 1955:GOTO 1320
ML 1286 D(4)=I:D(16)=0:? :IF RND(0)>0.8 AND D(25) THEN ? "↑It's *CURSED*!":D(16)=1
RG 1288 GOTO 1320
DU 1290 IF Z$<>"A" THEN 1300
YD 1292 I=INT(D(2)/3.1)+1:I=INT(RND(0)*3)+I:L$=AR$((I-1)*10+1,I*10):GOSUB 1950:
UT 1294 ? "You find a ";L$;" suit of armor":X=D(5):? "You are wearing ";AR$((X-1)*10+1,X*10)
XF 1295 ? "Do you take it? ";:GOSUB YN
XN 1296 IF L$<>"Y" THEN GOSUB 1955:GOTO 1320
KO 1298 D(5)=I:? "It fits.":GOTO 1320
BQ 1300 I=INT(RND(0)*3)+1:? "You find a ";:IF I=1 THEN ? "heal";:D(10)=D(10)+1
RN 1302 IF I=2 THEN ? "teleport";:D(11)=D(11)+1
CG 1304 IF I=3 THEN ? "fireball";:D(12)=D(12)+1
EJ 1306 ? " spell."
KD 1320 GOSUB 1945:GOSUB 1960:GOTO 1100
PI 1350 GOSUB 1945:GOSUB 1920:? "?↑";
TP 1352 F=INT(RND(0)*5)+D(2):RESTORE 1360:FOR I=1 TO F:READ Z$,SE,BY,X:NEXT I
NA 1354 D(28)=SE:D(29)=BY:X=(X-1)*13:D(30)=X+INT(RND(0)*15):IF D(30)<10 THEN D(30)=10
```

continued on next page

```
SL 1356 ? CHR$(ASC(Z$)+128);"#";:GOSUB 1905:? :? :? "A ";Z$;" attacks!":GOTO 1370
UH 1360 DATA snake,6,2,1,weasel,6,2,1,bat,8,1,1,giant worm,2,2,2,Stirge,7,3,2,Blob,1,3,2,la-mi'raj,6,3,3
HY 1361 DATA grue,4,3,3,yellow mold,2,4,4
DJ 1362 DATA goblin,4,5,3,brass falcon,7,5,4,Wox,4,5,4,Quaggoth,5,5,4,firebat,7,7,5,Basilisk,6,5,6,Vulching,3,6,5
VO 1363 DATA spectre,8,5,6,Norker,4,6,6
WE 1364 DATA rock lizard,3,7,7,Gargoyle,5,8,7,troll,3,6,7,Manticore,8,6,7,Zygom,3,7,8,cockatrice,8,6,8,Barood,5,7,8
WG 1365 DATA Dire Wrath,4,8,9,Fire Dragon,7,8,9,Todram,8,8,9
MR 1370 ? "H:";D(1);"  Attk/Wthdw/Cast >";
AX 1372 POKE 702,64:POKE 694,0:GET #2,A:L$=CHR$(A):IF L$<>"A" AND L$<>"W" AND L$<>"C" THEN 1372
HM 1373 IF L$="C" AND D(10)=0 AND D(11)=0 AND D(12)=0 THEN 1372
SS 1374 ? L$:IF L$<>"C" THEN 1390
EU 1376 ? "##";:GOSUB 1470
HH 1390 ? "########";:IF L$<>"W" THEN 1400
RS 1392 X=INT(RND(0)*4)+1:IF D(19+X)=0 THEN ? "The ";Z$;" blocks your way!":GOTO 1422
EN 1394 L$="####":L$=L$(X,X):? "You escaped!":? "#";:GOSUB 1945:GOTO 1200
SP 1400 IF L$="T" THEN I=1:GOTO 1270
BA 1402 IF L$="H" THEN ? "Your health returns!":D(1)=D(15):D(13)=D(13)+45:GOTO 1422
GL 1404 IF L$="F" THEN D(25)=INT(RND(0)*10)+15:GOTO 1410
AQ 1405 IF L$<>"A" THEN 1410
CS 1406 F=D(1)/D(15):D(25)=0:IF RND(0)<F-0.05 THEN T=D(4)*2:D(25)=INT(RND(0)*T)+1
MD 1407 IF RND(0)>0.95 THEN D(25)=16+INT(RND(0)*5)
CK 1408 IF INT(RND(0)*12)+1<D(28) OR D(16) THEN D(25)=0
RI 1410 D(30)=D(30)-D(25):IF D(30)>0 THEN 1420
EX 1412 GOTO 1414+2*INT(RND(0)*3)
YQ 1414 ? "The ";Z$;" curses you and":? " expires!":GOTO 1419
PF 1416 ? "The ";Z$;" dies in a cloud of":? " greasy black smoke!":GOTO 1419
GF 1418 ? ">Splat!< Now you smell as bad as the":? "  ";Z$;" did!"
DU 1419 ? "--*--*--":GET #2,A:GOSUB 1905:GOSUB 1945:GOTO 1230
IP 1420 SE=0:GOSUB 1460
PF 1422 D(25)=0:IF RND(0)<0.25+D(30)*0.01 THEN T=D(29)*2:D(25)=INT(RND(0)*T)+1
FM 1424 D(25)=D(25)-INT(D(5)*1.2):IF D(25)<1 THEN D(25)=0
KO 1426 IF D(25)>3 AND RND(0)>0.95 THEN D(25)=INT(RND(0)*20)+1
YN 1428 D(1)=D(1)-D(25):SE=1:GOSUB 1460:IF D(1)>0 THEN 1370
KS 1430 D(1)=0:? "  ...and you die!":GOTO 1500
UX 1450 DATA nick,hit,strike,pound,whack,slam,crack,CLOBBER,PULVERIZE,DEVASTATE
QX 1460 IF D(25)=0 AND SE THEN ? "The ";Z$;" misses.":RETURN
FI 1462 IF D(25)=0 THEN ? "You missed.":RETURN
HZ 1464 X=INT(D(25)/2.2)+1:RESTORE 1450:FOR I=1 TO X:READ L$:NEXT I
NK 1466 IF SE THEN ? "The ";Z$;" ";L$;"s you!":RETURN
OH 1468 ? "You ";L$;" the ";Z$;"!":RETURN
NP 1470 ? "Heal:";D(10);"  Help:";D(11);"  Fireb:";D(12);"  >#";
VE 1472 POKE 702,64:POKE 694,0:GET #2,A:L$=CHR$(A):IF L$<>"H" AND L$<>"T" AND L$<>"F" THEN 1472
OU 1474 X=10+(L$="T")+2*(L$="F"):IF D(X)<1 THEN 1472
MA 1476 D(X)=D(X)-1:? L$:RETURN
PB 1500 IF D(13)<1 THEN D(1)=0:? "You have starved to death."
MW 1502 IF D(2)<>24 OR D(1)<1 THEN 1510
XZ 1504 GOSUB 1905:? "You've found the Jewel!":D(2)=100
ZU 1506 FOR I=0 TO 15:SETCOLOR 2,15-I,I:SETCOLOR 4,15-I,I:SOUND 0,200-I*10,8,I:SOUND 1,205-I*10,12,I
AZ 1508 FOR X=1 TO 15:NEXT X:NEXT I:FOR I=1 TO 100:NEXT I:SOUND 0,0,0,0:SOUND 1,0,0,0:POKE 710,0:POKE 712,0
FQ 1510 ? "Total gold found : ";D(7)
VN 1515 ? :? "Another game? ";:GOSUB YN:IF L$="Y" THEN 1000
DJ 1520 POKE 106,PEEK(106)+8:GRAPHICS 0:END
ZJ 1600 GOSUB 1905:? "Saving your game...":TRAP 1612:CLOSE #1:OPEN #1,12,0,"D:ARSAVE"
BZ 1602 TRAP 1615:NOTE #1,SE,BY:INPUT #1,Z$
SR 1604 IF Z$=N$ OR Z$="THIS ACCOUNT IS FREE" THEN 1610
TC 1606 INPUT #1,Z$:INPUT #1,Z$:FOR I=1 TO 15:GET #1,F:NEXT I:GOTO 1602
ZT 1610 POINT #1,SE,BY:GOTO 1620
VC 1612 CLOSE #1:OPEN #1,8,0,"D:ARSAVE":GOTO 1620
EG 1615 CLOSE #1:OPEN #1,9,0,"D:ARSAVE"
YV 1620 ? #1;N$:? #1;MZ$:? #1;CON$:? #1;PT$
UG 1622 FOR I=1 TO 6:PUT #1,D(I):NEXT I:FOR I=10 TO 16:PUT #1,D(I):NEXT I
XG 1624 SE=INT(D(7)/256):BY=D(7)-SE*256:PUT #1,SE:PUT #1,BY:CLOSE #1
UU 1626 ? "#Game Saved#":GOTO 1515
MY 1650 ? "Loading game...";:TRAP 1680:CLOSE #1:OPEN #1,12,0,"D:ARSAVE"
YM 1652 NOTE #1,SE,BY:INPUT #1,Z$:IF Z$=N$ THEN 1660
IO 1654 INPUT #1,Z$:INPUT #1,Z$:INPUT #1,Z$:FOR I=1 TO 15:GET #1,F:NEXT I:GOTO 1652
KT 1660 INPUT #1,MZ$:INPUT #1,CON$:INPUT #1,PT$
CN 1662 FOR I=1 TO 6:GET #1,F:D(I)=F:NEXT I
GG 1664 FOR I=10 TO 16:GET #1,F:D(I)=F:NEXT I:GET #1,X:GET #1,I:D(7)=X*256+I
BP 1666 POINT #1,SE,BY:? #1;"THIS ACCOUNT IS FREE":CLOSE #1
UA 1670 GOSUB 1900:D(25)=D(6)
GL 1672 FOR I=1 TO LEN(CON$):IF ASC(CON$(I,I))<128 THEN D(6)=I:GOSUB 1930
BI 1674 NEXT I:D(6)=D(25):GOSUB 1945:GOTO 1100
BQ 1680 CLOSE #1:? "## No Game Saved! ":RETURN
IE 1900 ? "########## Move Inventory Rest  Level ";D(2):? "Down Stairs  Mast  Eat  Save/Load/Quit":?
TA 1902 D(8)=0:D(9)=0:RETURN
LJ 1905 POKE 752,1:POSITION D(8),15:? "#####";:D(8)=0:RETURN
QX 1920 X=ASC(MZ$(D(6))):IF X>127 THEN X=X-128
RT 1922 D(20)=(X/2<>INT(X/2)):D(23)=(X>7):D(22)=(X-D(23)*8>3):D(21)=(X-D(23)*8-D(22)*4>1):RETURN
WO 1930 BY=INT((I-1)/8):SE=I-BY*8:POSITION SE*3,BY*3+3:GOSUB 1920
UF 1932 L$="   #### # ####  ":X$="#":IF MZ$(I,I)>"#" THEN L$="##########  ########":X$=" "
WH 1933 IF CON$(I,I)="S" OR CON$(I,I)="H" THEN L$(9,9)="%"
KF 1934 DATA 2,10,16,8
ME 1936 RESTORE 1934:FOR F=0 TO 3:READ BY:IF D(20+F) THEN L$(BY,BY)=X$
BY 1938 NEXT F:POKE 752,1:? L$;:D(8)=D(8)+3:D(9)=D(9)+2:RETURN
TP 1940 I=D(6):BY=INT((I-1)/8):SE=I-BY*8-1:POSITION SE*3+4,BY*3+4:? "##";:RETURN
ES 1941 GOSUB 1940:X$="#":IF ASC(MZ$(I))<128 THEN X$="#"
BE 1942 IF CON$(I,I)="S" THEN X$="#"
QM 1943 IF CON$(I,I)="S" AND D(2)=24 THEN X$="#"
YU 1944 GOTO 1948
```

```
JY 1945 GOSUB 1940:X$=" ":IF ASC(MZ$(I))<
   128 THEN X$="#"
AG 1946 IF CON$(I,I)="S" THEN X$="%"
IM 1947 IF CON$(I,I)="S" AND D(2)=24 THEN
    X$="♦"
NH 1948 POKE 752,0:? X$;"←";:RETURN
FE 1950 IF L$(LEN(L$))=" " THEN L$=L$(1,L
   EN(L$)-1):GOTO 1950
BO 1952 RETURN
RT 1955 ? "▮▮▮It disappears with a >Poof!
   <":RETURN
QY 1960 IF D(1)>D(15) THEN D(1)=D(15)
ZU 1961 IF D(13)>154 THEN D(13)=154
LU 1962 IF D(1)<1 OR D(13)<1 THEN D(1)=0:
   POP :POP :GOSUB 1905:? "You've died!":
   GOTO 1500
QH 1963 IF D(13)>14 AND D(14)>14 THEN RET
   URN
DF 1964 IF D(13)<15 AND D(14)>14 THEN POS
   ITION 0,2:? "You're getting hungry.":?
    "↑";:GOSUB 1945
OW 1965 IF D(13)<7 AND D(14)>6 THEN POSIT
   ION 0,2:? "▮▮▮▮▮▮▮▮▮▮You're starving!":?
    "↑";:GOSUB 1945
FE 1966 IF D(13)>14 AND D(14)<15 THEN POS
   ITION 0,2:? "▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮"
   ;:GOSUB 1945
CP 1968 RETURN
TH 2000 POKE 764,255:POKE 702,64:POKE 694
   ,0:GET #2,A:IF A<>78 AND A<>89 THEN 20
   00
LY 2002 L$=CHR$(A):IF L$="N" THEN ? "No":
    RETURN
GY 2004 ? "Yes":RETURN
```

LISTING 2

```
GI 10 REM ATARI ROGUE, LISTING TWO
SY 20 REM BY ROBERT JUNG
FW 30 REM (c) 1985, ANTIC PUBLISHING
CQ 40 REM (LINES 10-220 MAY BE USED WITH
   OTHER BASIC LOADERS IN THIS ISSUE.
IS 45 REM CHANGE LINE 70 AS NECESSARY.)
MG 50 DIM FN$(20),TEMP$(20),AR$(93)
HO 60 DPL=PEEK(10592):POKE 10592,255
TZ 70 FN$="D:AROGUE.FNT":REM THIS IS THE
   NAME OF THE DISK FILE TO BE CREATED
YS 80 GRAPHICS 0:? "      ANTIC'S GENERIC
   BASIC LOADER"
CD 90 ? ,"BY CHARLES JACKSON"
PW 100 POKE 10592,DPL:TRAP 170
PO 110 ? :? :? "Creating ";FN$:? "...plea
   se stand by."
LQ 120 RESTORE :READ LN:LM=LN:DIM A$(LN):
   C=1
BK 130 AR$="":READ AR$
XW 140 FOR X=1 TO LEN(AR$) STEP 3:POKE 75
   2,255
DG 150 LM=LM-1:POSITION 10,10:? "(Countdo
   wn...T-";INT(LM/10);")    "
UY 160 A$(C,C)=CHR$(VAL(AR$(X,X+2))):C=C+
   1:NEXT X:GOTO 130
MZ 170 IF PEEK(195)=5 THEN ? :? :? "▯TOO
   MANY DATA LINES!":? "CANNOT CREATE FIL
   E!":END
CZ 180 IF C<LN+1 THEN ? :? "▯TOO FEW DATA
    LINES!":? "CANNOT CREATE FILE!":END
AL 200 OPEN #1,8,0,FN$
PP 210 POKE 766,1:? #1;A$;:POKE 766,0
AF 220 CLOSE #1:GRAPHICS 0:? "█COMPLETED█
   "
GK 1000 DATA 1024
QM 1010 DATA 000000000000000000000000000000
   560560560560000560000001021020680000000
   0000000960030160021920006129
WN 1020 DATA 016024062112060014124024000
   0022409605602401400600302805402805611
   1020590000000280240480000000
HY 1030 DATA 000000000120240240240240120
   000000480240240240240480000000102060255
   0601020000000000024024126024
TB 1040 DATA 024000000000000000000000240
   240480000000012600000000000000000000000
   0000080280080000000006012024
QO 1050 DATA 048096192000000124230238246 2
   3012400000000280600280280280620000001 24
   2060280561122540000000124206
AJ 1060 DATA 060014206124000000000300621102
   062540140000002542242520061981240000 00
   124224252230230124000000254
RO 1070 DATA 206028056056056000000124230 1
   242302301240000001242062061260141240 00
   000008028008008028008000000
IO 1080 DATA 008028008000024024048006012 0
   240480240120060000000001260000001260 00
   000096048024012024048096000
GB 1090 DATA 000124206028056000005600000 01
   242302382382241260000000140300621102 54
   206096000252110124110110124
OW 1100 DATA 000000126230224224230124000 0
   002482362362362362480000000252230248224
   2302520000000252230224248224
NT 1110 DATA 224000000124230224238230124 0
   000002302302542302302300000001200560 56
   0560560560000001261100140 14
WT 1120 DATA 206124000000230236248236230 2
   300060002402242242242302540000002302 38
   254214214198000000252230230
MV 1130 DATA 230230236024000124230230230 2
   301240000002521981821242242240000001 24
   230230230230124014000252198
FJ 1140 DATA 182124236230006000126230112 0
   282061240000002542160240240240240000 00
   230230230230230124000000230
OU 1150 DATA 230230230124056000000230230 2
   302342202460000002301080560561082300 06
   000230230124056056056000000
QL 1160 DATA 254012024048096254000024048 0
   480960480480240000001920960480240120 06
   000048024024012024024048000
QA 1170 DATA 016056108000000000000000000 0
   000000000000002550000000541271270620 28
   008000024024024031031024024
GD 1180 DATA 024003003003003003003003003 0
   240240242482480000000000024024024248 248
   024024024000000000248248024
UY 1190 DATA 024024003007014028056112224 1
   921922241120560280140070030010030070 15
   031063127255003006059126055
IP 1200 DATA 061238124128192224240248252 2
   542551040600031061055030003000059062 118
   236252216096192255255000000
NG 1210 DATA 000000000000000000000000000 0
   002552550641122201262141241100550000 28
   028119119008028000000000000
GY 1220 DATA 031031024024024000000000025 52
   550000000000024024024255255024024024 000
   000060126126126060000000227
DL 1230 DATA 221255239189000000192192192 1
   921921921921920000000002552550240240 24
   024024024255255000000000046
CO 1240 DATA 052060028056028060054024024 0
   240310310000000001200961200961260240 30
   000000024060126000024024000
HZ 1250 DATA 000024024000126060024000000 0
   320962380960320000000000080122060120 08
   000000000060066255195102060
KG 1260 DATA 024000000120012124236126000 0
   002402242522302302520000000001242362 24
   236120000000140121242362 36
DG 1270 DATA 124000000000124230252224124 0
   000000300541200480480480960000000126 236
   108060204248000224224252230
AB 1280 DATA 230236000000056000120056056 0
   560000000140000300140142062520002242 24
   236248236230006000120056056
FI 1290 DATA 056056124000000000000236254 2542
   142140000000002522302302302360000000 00
   124230230230124000000000252
SS 1300 DATA 110110124096192000000126236 2
   361240120060000000252230236224224000 000
   000124224124014124000000112
HJ 1310 DATA 048120048054030000000000206 2
   062062061240000000002302302301240560 00
   000000230230214254238000000
EI 1320 DATA 000102060024060102006000000 1
   102061100622062520000000254028056112 254
   000000024060126126024060000
XZ 1330 DATA 024024024024024024024024000 1
   261201241101020060000000802405612005 6024
   008000016024028030028024016
DR 1340 DATA 000
```

NEW OWNERS COLUMN

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LISTING 1

Don't type the TYPO II Codes!

```
QF 10 REM THE NEW OWNER'S COLUMN #14
PQ 20 REM BY DAVID PLOTKIN
HA 30 REM (c) 1987, ANTIC PUBLISHING
RS 40 GRAPHICS (1+16):REM FULL TITLE SCRE
   EN
YG 50 SETCOLOR 4,3,2:REM RED BACKGROUND
LI 60 POSITION 3,5:PRINT #6;"AnTIC pRESeN
   TS";
PE 70 DIM KEYTABLE(10):RESTORE 80:FOR X=1
    TO 10:READ Y:KEYTABLE(X)=Y:NEXT X
AK 80 DATA 63,62,58,56,61,57,1,5,0,2
OF 90 FOR LP=1 TO 13:READ DT:COLOR DT:REM
    GET DATA FOR THE LETTERS
GI 100 FOR LP1=2 TO 17-LP:PLOT LP1,8:REM
   SLIDE THE LETTERS ONTO THE SCREEN
OB 110 FOR WAIT=1 TO 5:NEXT WAIT:REM A SH
   ORT DELAY LOOP
LL 120 NEXT LP1
QD 130 COLOR 32:FOR LP1=16-LP TO 2 STEP -
   1:PLOT LP1,8:REM PRINT SPACES
FX 140 FOR WAIT=1 TO 10:NEXT WAIT:REM A S
   HORT DELAY LOOP
LR 150 NEXT LP1
PD 160 NEXT LP
QN 170 DATA 82,101,196,238,73,114,199,32,
   238,65,103,210,239
GK 180 POSITION 3,16:? #6;"PRESS ANY KEY"
   ;:POSITION 4,17:? #6;"TO CONTINUE";
JJ 190 POKE 764,255:REM CLEAR THE KEYBOAR
   D BUFFER. THIS IS USEFUL WHEN YOU WANT
    TO READ A KEY.
GP 200 IF PEEK(764)<>255 THEN POKE 764,25
   5:GOTO 240:REM A KEY HAS BEEN PRESSED.
    DOESN'T MATTER WHICH ONE...
EY 210 HOLD=PEEK(708):POKE 708,PEEK(709):
   POKE 709,PEEK(710):POKE 710,PEEK(711):
   POKE 711,HOLD
FN 220 REM ABOVE, WE USE THE PEEK/POKE ME
   THOD TO ROTATE THE COLORS IN THE COLOR
    REGISTERS
RM 230 FOR WAIT=1 TO 10:NEXT WAIT:GOTO 20
   0
HY 240 DIM ANSWER$(10)
GC 250 GRAPHICS 2+16:REM LARGE LETTERS
GV 260 REM GET THE TEMPO
YD 270 POSITION 1,2:? #6;"PRESS SELECT":P
   OSITION 1,3:? #6;"TO SELECT TEMPO"
BF 280 POSITION 1,4:? #6;"PRESS START":PO
   SITION 1,5:? #6;"WHEN YOU ARE"
QG 290 POSITION 1,6:? #6;"READY TO PLAY":
   TEMPO=1
SE 300 POSITION 1,8:? #6;"tempo ";TEMPO:C
   ONSOLE=53279:REM LOCATION TO READ THE
   SELECT/START/OPTION BUTTONS
NW 310 IF PEEK(CONSOLE)=5 THEN TEMPO=TEMP
   O+1:IF TEMPO=6 THEN TEMPO=1:REM THE SE
   LECT BUTTON WAS PRESSED
QF 320 POSITION 7,8:? #6;TEMPO
EX 330 IF PEEK(CONSOLE)=6 THEN 350:REM TH
   E START BUTTON WAS PRESSED
VY 340 FOR WAIT=1 TO 30:NEXT WAIT:GOTO 31
   0
UP 350 GRAPHICS 7:REM HI-RES. 4-COLOR GRA
   PHICS MODE
BL 360 REM SET-UP THE KEYBOARD ON THE SCR
   EEN.
HW 370 SETCOLOR 4,6,2:REM PURPLE BACKGROU
   ND
IG 380 SETCOLOR 0,5,4:SETCOLOR 1,0,8:SETC
   OLOR 2,6,2:REM SET THE COLORS YOU WANT
QE 390 COLOR 1:FOR X=20 TO 130 STEP 12:PL
   OT X,40:DRAWTO X+10,40:DRAWTO X+10,77:
   DRAWTO X,77
EA 400 DRAWTO X,40:NEXT X:REM DRAW THE OU
   TLINE OF EACH KEY IN COLOR 1
SS 410 COLOR 2:FOR X=20 TO 130 STEP 12:FO
   R Y=40 TO 75
OE 420 PLOT X+1,Y+1:DRAWTO X+9,Y+1
NW 430 NEXT Y:NEXT X:REM FILL IN THE KEYS
    IN COLOR 2
ER 440 REM DRAW THE LETTERS
CV 450 COLOR 2:PLOT 23,35:DRAWTO 23,30:DR
   AWTO 27,30:DRAWTO 27,35:PLOT 23,32:DRA
   WTO 27,32:REM THE LETTER "A"
OZ 460 PLOT 35,35:DRAWTO 39,35:DRAWTO 39,
   32:DRAWTO 35,32:DRAWTO 35,30:DRAWTO 39
   ,30:REM THE LETTER "S"
IX 470 PLOT 47,35:DRAWTO 47,30:DRAWTO 50,
   30:PLOT 51,31:DRAWTO 51,34:PLOT 50,35:
   DRAWTO 47,35:REM THE LETTER "D"
QH 480 PLOT 59,35:DRAWTO 59,30:DRAWTO 63,
   30:PLOT 59,33:DRAWTO 62,33:REM THE LET
   TER "F"
DY 490 PLOT 73,33:DRAWTO 75,33:DRAWTO 75,
   35:DRAWTO 71,35:DRAWTO 71,30:DRAWTO 75
   ,30:REM THE LETTER "G"
NL 500 PLOT 83,35:DRAWTO 83,30:PLOT 87,30
   :DRAWTO 87,35:PLOT 83,33:DRAWTO 87,33:
   REM THE LETTER "H"
XR 510 PLOT 95,33:DRAWTO 95,35:DRAWTO 99,
   35:DRAWTO 99,30:REM THE LETTER "J"
XD 520 PLOT 107,35:DRAWTO 107,30:PLOT 107
   ,33:DRAWTO 111,30:PLOT 107,33:DRAWTO 1
   11,35:REM THE LETTER "K"
HT 530 PLOT 123,35:DRAWTO 119,35:DRAWTO 1
   19,30:REM THE LETTER "L"
GZ 540 PLOT 134,31:PLOT 134,32:PLOT 134,3
   4:PLOT 133,35:REM THE LETTER ";"
LI 550 REM THE ABOVE IS ONE WAY TO PUT LE
   TTERS ON A GRAPHICS SCREEN.
YZ 560 POKE 752,1:? "      B  C  D  E  F  G
     A  B  C  D"
MZ 570 REM INITIALIZE OUR SOUND ROUTINES
PU 580 DIM NTES(10):RESTORE 590:FOR X=1 T
   O 10:READ NTE:NTES(X)=NTE:NEXT X
VP 590 DATA 128,121,108,96,91,81,72,64,60
   ,53
NG 600 KEY=PEEK(764):IF KEY=255 THEN 600
BX 610 IF KEY=28 THEN 690
KV 620 POKE 764,255:NTI=1
FJ 630 IF KEY=KEYTABLE(NTI) THEN NT=NTI:G
   OTO 650
ZF 640 NTI=NTI+1:ON ((NTI<11)+1) GOTO 680
   ,630
OD 650 SOUND 0,NTES(NTI),10,10
OC 660 COLOR 1:PLOT 13+NTI*12,60
HN 670 FOR COUNT=1 TO TEMPO*10:NEXT COUNT
   :SOUND 0,0,0,0:COLOR 2:PLOT 13+NT*12,6
   0
NZ 680 GOTO 600
LB 690 SOUND 0,0,0,0:GRAPHICS 0
NW 700 END
```

LISTING 2

```
WJ 10 REM SOUND MENU
PT 12 REM BY DAVID PLOTKIN
HG 14 REM (c) 1987, ANTIC PUBLISHING
OD 16 GRAPHICS 0:? "Choose Your Sound:":?
    :? "1 RIFLE SHOT"
TY 18 ? "2 BOMB":? "3 SIREN":? "4 EUROPEA
   N SIREN"
AP 20 ? "5 WHISTLE & BOMB":? "6 SAWING WO
   OD":? "7 GENTLEMEN, START YOUR ENGINES
   "
XD 30 POKE 752,0:POKE 77,0:POSITION 0,15:
   ? "Which Sound";:INPUT A
MD 35 POKE 752,1:? :POKE 77,128
```

```
NM 40 ON A GOSUB 100,300,500,700,800,1000
   ,1200
5E 50 GOTO 30
LF 100 REM RIFLE SHOT
DI 110 DUR=3
VV 120 PITCH=20:GOSUB 160
EW 130 SOUND 1,0,0,0:SOUND 2,0,0,0
IU 140 SOUND 0,0,0,0:SOUND 1,0,0,0:SOUND
   2,0,0,0:RETURN
CF 160 SOUND 2,75,8,15
TL 170 ICR=0.62+DUR/100
VX 180 V1=15:V2=15:V3=15
IN 190 SOUND 0,PITCH,8,V1
OR 200 SOUND 1,PITCH+20,8,V2
RJ 210 SOUND 2,PITCH+50,8,V2
OX 220 V1=V1*ICR
UY 230 V2=V2*(ICR+0.05)
XU 240 V3=V3*(ICR+0.08)
ST 250 IF V3>1 THEN 190
RK 260 SOUND 0,0,0,0:RETURN
MR 300 REM BOMB
EU 310 DUR=7
YS 320 PITCH=50:GOSUB 360
EY 330 SOUND 1,0,0,0:SOUND 2,0,0,0
IW 340 SOUND 0,0,0,0:SOUND 1,0,0,0:SOUND
   2,0,0,0:RETURN
CH 360 SOUND 2,75,8,15
FF 370 ICR=0.8+DUR/100
VZ 380 V1=15:V2=15:V3=15
IP 390 SOUND 0,PITCH,8,V1
OT 400 SOUND 1,PITCH+20,8,V2
RL 410 SOUND 2,PITCH+50,8,V2
OZ 420 V1=V1*ICR
VA 430 V2=V2*(ICR+0.05)
XW 440 V3=V3*(ICR+0.08)
UF 450 IF V3>1 THEN 390
RM 460 SOUND 0,0,0,0:RETURN
GV 500 REM SIREN
VG 510 DUR=10
RQ 520 LO=50:HI=35:STP=-0.5
LU 530 FOR TIME=1 TO DUR
CD 540 FOR PITCH=LO TO HI STEP STP
SK 550 SOUND 0,PITCH,10,14
TB 560 FOR WAIT=1 TO 15:NEXT WAIT
UZ 570 NEXT PITCH
AG 580 XX=LO:LO=HI:HI=XX:STP=-STP
HR 590 NEXT TIME
RC 600 SOUND 0,0,0,0:RETURN
JM 700 REM EUROPEAN SIREN
EG 710 DUR=5
OX 720 LO=57:HI=45:PITCH=HI
NC 730 FOR TIME=0 TO DUR*2
SK 740 SOUND 0,PITCH,10,14
JT 750 FOR WAIT=1 TO 180:NEXT WAIT
OX 760 PITCH=LO:LO=HI:HI=PITCH
HP 770 NEXT TIME
RT 780 SOUND 0,0,0,0:RETURN
OA 800 REM WHISTLE AND BOMB
EH 810 DUR=5
VG 820 V1=4:FOR PITCH=30 TO 75
VA 830 SOUND 0,PITCH,10,V1
DX 840 SOUND 1,PITCH+3,10,V1*0.7
BI 850 FOR WAIT=1 TO DUR*3:NEXT WAIT
NI 860 V1=V1*1.03:NEXT PITCH
YJ 870 SOUND 2,35,8,12
WE 880 V1=15:V2=15:V3=15
QP 890 PITCH=DUR+5:ICR=0.8+DUR/100
ID 900 SOUND 0,PITCH,8,V1
PA 910 SOUND 1,PITCH+20,8,V2
SR 920 SOUND 2,PITCH+50,8,V3
PG 930 V1=V1*ICR
VH 940 V2=V2*(ICR+0.05)
YD 950 V3=V3*(ICR+0.08)
SB 960 IF V3>1 THEN 900
JI 970 SOUND 0,0,0,0:SOUND 1,0,0,0:SOUND
   2,0,0,0:RETURN
LH 1000 REM SAWING WOOD
BG 1010 DUR=8
MA 1020 FOR TIME=1 TO DUR
QC 1030 ST=16:VL=12:GOSUB 1060
QJ 1040 ST=18:VL=8:GOSUB 1060
AO 1050 NEXT TIME:RETURN
ID 1060 FOR PITCH=ST+5 TO ST STEP -1
KT 1070 GOSUB 1130:NEXT PITCH
MO 1080 FOR PITCH=ST TO ST+5
LN 1090 GOSUB 1140:NEXT PITCH
TV 1100 SOUND 0,0,0,0:SOUND 1,0,0,0
QN 1110 FOR WAIT=1 TO 25:NEXT WAIT
AH 1120 RETURN
ET 1130 SOUND 0,PITCH,4,VL
OL 1140 SOUND 1,PITCH,8,VL*0.7
DU 1150 FOR WAIT=1 TO 3:NEXT WAIT:RETURN
FH 1200 REM GENTLEMEN, START YOUR ENGINES
YO 1210 FOR TIMES=1 TO 3
CT 1220 FOR CYCLES=1 TO 5
BX 1230 SOUND 0,200-CYCLES*20,0,14-CYCLES
MY 1240 FOR WAIT=1 TO 25:NEXT WAIT:NEXT C
   YCLES
EU 1250 FOR CYCLES=1 TO 7
WZ 1260 SOUND 0,CYCLES*20,0,14-CYCLES
NH 1270 FOR WAIT=1 TO 25:NEXT WAIT:NEXT C
   YCLES
TO 1280 SOUND 0,0,0,0:FOR WAIT=1 TO 100:N
   EXT WAIT
LR 1290 NEXT TIMES
JY 1300 SOUND 0,100,4,8
UY 1310 FOR WAIT=1 TO 2000:NEXT WAIT
JE 1320 FOR W=200 TO 50 STEP -1
ZN 1330 SOUND 0,W,2,10:FOR WAIT=1 TO 10:N
   EXT WAIT
XK 1340 NEXT W:SOUND 0,50,2,8
JY 1350 FOR WAIT=1 TO 2000:NEXT WAIT:RETU
   RN
```

ST RESOURCE

ANTIC TOWERS

Article on page 57

LISTING 1

TYPO ST codes for ANTIC TOWERS! Don't type these.

1000	:00F2
1010	:055C
1020	:0A33
1030	:0D4B
1040	:00EC
1050	:07F5
1060	:0D15
1070	:0BE7
1080	:04C2
1090	:0B74
1100	:0BE7
1110	:00EA
1120	:01EE

```
1000  '
1010  'Antic Towers
1020  '(c) 1987 Antic Publishing V. 010487
1030  'Written by Steve Everman & Paul Pratt
1040  '
1050  '---------------------------------------
1060   A$=chr$(0)+chr$(0)+chr$(0)+chr$(0): BELL$=chr$( 7 )
1070   A=varptr( A$ ): A1=int( A/65536 ): A2=A-( A1*65536 )
1080   randomize 0
1090   HANDLE=2: EXIT=2: TRUE=1: FALSE=( not TRUE )
1100   GRAF.MKSTATE=79: FORM.ALERT=52: WIND.SET=105
1110  '
1120   A##=GB
```

continued on next page

```
1130   CONTROL=peek( A# )
1140   GINTOUT=peek( A#+12 )
1150   GINTIN=peek( A#+8 )
1160   dim STACK( 3, 9 ),KOL%( 16 )
1170   gosub SET.PALETTE
1180   fullw 2: clearw 2
1190   if peek( SYSTAB )<>4 then gosub WARNING
1200   if peek( SYSTAB )<>4 then gosub ALERTBOX
1210   if CHOICE=EXIT then end
1220   gotoxy 0,0: print BELL$;: color 1,0,0
1230   for X=0 to 20
1240      gosub POLYLINE
1250   next X
1260   gosub ED.BOX: gosub FIND.HI
1270   OLD.DISK=NUMDISK
1280   gosub SET.ARRAY: gosub SCREEN.SET.UP
1290   gotoxy 14,2: print "[ READY ]"
1300  '
1310  '---------------------------
1320  MAIN:
1330   gosub GET.MOUSE
1340   while NEW.PRESS <>3
1350      gosub GET.MOUSE
1360      gosub SHOW
1370      while STACK( 2,8-NUMDISK )=0 and STACK( 3,8-NUMDISK )=0
1380           gosub GET.MOUSE
1390           if NEW.PRESS=1 and FALL=1 and INAIR=0 then gosub PULL
1400           if NEW.PRESS=1 and FALL=1 and INAIR>0 then gosub DOWN
1410      wend
1420      gosub REWARD
1430      gosub NEW.GAME
1440   wend
1450   color 5
1460  end
1470  '
1480  '-----------------------
1490  FIND.HI:
1500   color 10: gotoxy 5,1: print "How many disks do you want?"
1510   R=4: gosub REVERSE: color 11
1520   for X=0 to 6
1530      S$=chr$( 32 )+chr$( 49+X )+chr$( 32 )
1540      gotoxy 4+X*4,3: print  S$
1550   next X
1560   gotoxy 15,5: print "EXIT"
1570   R=1: gosub REVERSE: color 1
1580   while NEW.PRESS<>1 or MX>277 or MX <30 or MY>65 or MY<40
1590      gosub GET.MOUSE
1600      X.CHECK=FALSE: Y.CHECK=FALSE
1610      if MX>135 and MX<168 then X.CHECK=TRUE
1620      if MY>68 and MY<77 then Y.CHECK=TRUE
1630      if NEW.PRESS and X.CHECK and Y.CHECK then end
1640   wend
1650   gosub HIDE
1660   for X=1 to 5
1670      gotoxy 2,X: print "                                  "
1680   next
1690   gosub SHOW: NUMDISK=int(( MX+8 )/36 )
1700  return
1710  '
1720  '---------------------------------
1730  FIND.TOP:
1740   gosub GET.MOUSE
1750   SOURCEX=154: DISK.POLE=2
1760   if MX>199 then SOURCEX=246: DISK.POLE=3
1770   if MX<107 then SOURCEX=62: DISK.POLE=1
1780   for Y=1 to 8
1790      if STACK( DISK.POLE,Y-1 )=0 then TOP=Y
1800   next Y
1810  return
1820  '
```

```
1130 :057D
1140 :0615
1150 :058A
1160 :0650
1170 :0612
1180 :0610
1190 :0BF9
1200 :0C3C
1210 :079B
1220 :0B22
1230 :0417
1240 :0553
1250 :02DF
1260 :08C3
1270 :055A
1280 :0B8B
1290 :0911
1300 :00EB
1310 :05D8
1320 :0225
1330 :057E
1340 :0633
1350 :0580
1360 :042B
1370 :0E3C
1380 :0583
1390 :0F8E
1400 :0F82
1410 :0274
1420 :04AC
1430 :051A
1440 :0277
1450 :031E
1460 :0202
1470 :00F3
1480 :052C
1490 :02E8
1500 :1291
1510 :08BB
1520 :03ED
1530 :08A3
1540 :07C6
1550 :02E2
1560 :0822
1570 :088D
1580 :0F17
1590 :0586
1600 :081A
1610 :0AD6
1620 :0A7E
1630 :0D53
1640 :0279
1650 :0406
1660 :03F2
1670 :06D9
1680 :028E
1690 :0A50
1700 :0368
1710 :00F0
1720 :06EB
1730 :0347
1740 :0583
1750 :06FF
1760 :0B07
1770 :0AC5
1780 :03F9
1790 :0A78
1800 :02E1
1810 :036A
1820 :00F2
```

```
1830 '-----------------------------------
1840 PULL:
1850  gosub FIND.TOP: if TOP>7 then return
1860  INAIR=STACK( DISK.POLE, TOP )
1870 '
1880 PULL.UP:
1890  gosub HIDE
1900  X1=SOURCEX-40: X2=SOURCEX+40
1910  Y1=87+TOP*11: Y2=Y1+10
1920  XD1=115: XD2=195: YD1=40: YD2=50
1930  gosub VRO.COPYFORM
1940  XD1=X1: XD2=X2: YD1=Y1: YD2=Y2
1950  X1=22: X2=102: Y1=87: Y2=97
1960  gosub VRO.COPYFORM: gosub SHOW
1970  STACK( DISK.POLE, TOP )=0
1980 return
1990 '
2000 '-----------------------------------
2010 DOWN:
2020  gosub FIND.TOP
2030  if INAIR > STACK( DISK.POLE, TOP ) then return
2040 '
2050 PUT.DOWN:
2060  gosub HIDE
2070  X1=115: X2=195: Y1=40: Y2=50
2080  XD1=SOURCEX-40: XD2=SOURCEX+40
2090  YD1=76+TOP*11: YD2=YD1+10
2100  OLD.DISK=NUMDISK
2110  gosub VRO.COPYFORM
2120  gosub SHOW
2130  STACK( DISK.POLE, TOP-1 )=INAIR
2140 '
2150 ERRASE:
2160  X1=15: X2=95: Y1=55: Y2=65
2170  XD1=115: XD2=195: YD1=40: YD2=50
2180  gosub VRO.COPYFORM
2190  INAIR=0: print BELL$;
2200 return
2210 '
2220 '--------------------------------
2230 NEW.GAME:
2240  gosub FIND.HI
2250  gosub SET.ARRAY
2260  if NUMDISK>OLD.DISK then gosub SEE.DISKS
2270  while NUMDISK<OLD.DISK
2280     TOP=TOP+1
2290     gosub PULL.UP
2300     gotoxy 0,0
2310     for D=0 to 350: next D
2320     gosub ERRASE
2330     OLD.DISK=OLD.DISK-1
2340  wend
2350  gotoxy 14,2: print "[ READY ]"
2360 return
2370 '
2380 '-----------------------------
2390 SET.ARRAY:
2400  for X=0 to 8
2410     STACK( 1, X )=X*10
2420     STACK( 2, X )=0
2430     STACK( 3, X )=0
2440  next X
2450  for Y=0 to 7-NUMDISK
2460     STACK( 1, Y )=0
2470  next Y
2480  for X=0 to 3
2490     STACK( X, 8 )=80
2500  next X
2510 return
2520 '
```

1830	:06ED
1840	:0244
1850	:0BF0
1860	:07EE
1870	:00F7
1880	:031B
1890	:040C
1900	:0803
1910	:05C3
1920	:07A5
1930	:0681
1940	:07D0
1950	:066F
1960	:0A1F
1970	:06AD
1980	:0372
1990	:00FA
2000	:06E3
2010	:0235
2020	:0526
2030	:0D03
2040	:00ED
2050	:0360
2060	:0402
2070	:0692
2080	:088B
2090	:068D
2100	:0553
2110	:0678
2120	:0426
2130	:0843
2140	:00EE
2150	:02C4
2160	:063C
2170	:07A3
2180	:067F
2190	:0691
2200	:0364
2210	:00EC
2220	:06BA
2230	:0333
2240	:04C8
2250	:0582
2260	:0C82
2270	:0773
2280	:034B
2290	:04FD
2300	:03FB
2310	:0676
2320	:04A9
2330	:05D3
2340	:0277
2350	:090F
2360	:036B
2370	:00F3
2380	:063A
2390	:03A1
2400	:03ED
2410	:0463
2420	:03B2
2430	:03B4
2440	:02E1
2450	:063A
2460	:03B6
2470	:02E5
2480	:03F0
2490	:03F7
2500	:02DE
2510	:0368
2520	:00F0

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```
2530  '------------------------------
2540  SCREEN.SET.UP:
2550   gosub HIDE
2560   FC=10: gosub FILCOL
2570   X1=8: Y1=175: X2=300: Y2=188
2580   gosub DISK
2590   Y1=80: Y2=180
2600   for X1=59 to 265 step 92
2610       X2=X1+6
2620       gosub DISK
2630   next X1
2640  '
2650  SEE.DISKS:
2660   Y1=164: Y2=174
2670   for Y=7 to 8-NUMDISK step -1
2680       gosub DRAW.DISK
2690   next Y
2700  return
2710  '
2720  '------------------------------
2730  DRAW.DISK:
2740   gotoxy 0, 0: print  BELL$;
2750   FC=1+STACK( 1, Y )/10: gosub FILCOL
2760   X1=57-( STACK( 1, Y )/2 )
2770   X2=X1+STACK( 1, Y )+10
2780   gosub DISK
2790   Y1=Y1-11: Y2=Y2-11
2800  return
2810  '
2820  '------------------------------
2830  REWARD:
2840   for Y=NUMDISK-1 to 0 step -1
2850       color TOP+Y: gotoxy 10,1: print "CONGRATULATIONS"
2860       for X=0 to 7
2870             print  BELL$;
2880             for D=0 to 100: next D
2890       next X
2900       color 1
2910   next Y
2920   gotoxy 10,1: print "               "
2930  '
2940  MOVE.BACK:
2950   SX=SOURCEX
2960   for TOP=7 to 8-NUMDISK step -1
2970       for Q=1 to 6
2980             gosub ROTATE
2990             sound 1, 2+Q*2, 1, Q, 2
3000       next Q
3010       SOURCEX=SX: gosub PULL.UP: TOP=TOP+1
3020       for Q=1 to 6
3030             gosub ROTATE
3040             sound 1, 16-Q*2, 1, 7-Q, 2
3050       next Q
3060       SOURCEX=62: gosub PUT.DOWN: TOP=TOP-1
3070   next TOP
3080   sound 0, 0, 0, 0, 0: gosub SET.PALETTE
3090  return
3100  '
3110  '----------------------------------
3120  ROTATE:
3130   HOLD=KOL%( 1 )
3140   for X=1 to 7
3150       KOL%( X )=KOL%( X+1 )
3160   next X
3170   KOL%( 7 )=HOLD
3180   defdbl C: C=1114
3190   poke C,varptr( KOL%( 0 ))
3200  return
3210  '
3220  '-------------------------------------
```

```
2530 :0664
2540 :04B2
2550 :0406
2560 :0607
2570 :06A1
2580 :041A
2590 :039A
2600 :06EA
2610 :027A
2620 :0415
2630 :0313
2640 :00F3
2650 :0390
2660 :03CE
2670 :0860
2680 :0577
2690 :02E9
2700 :0369
2710 :00F1
2720 :0665
2730 :038D
2740 :07E8
2750 :0910
2760 :055D
2770 :0554
2780 :041C
2790 :04CE
2800 :036A
2810 :00F2
2820 :0666
2830 :02CC
2840 :0851
2850 :0F2F
2860 :03F6
2870 :047C
2880 :067B
2890 :02EA
2900 :031B
2910 :02E4
2920 :06E0
2930 :00F5
2940 :037F
2950 :03E1
2960 :08FC
2970 :03F1
2980 :04C2
2990 :059C
3000 :02D3
3010 :0AF8
3020 :03E4
3030 :04B5
3040 :062A
3050 :02D8
3060 :0B0B
3070 :037C
3080 :0A17
3090 :036C
3100 :00EB
3110 :06E6
3120 :02CF
3130 :03B8
3140 :03EF
3150 :04CA
3160 :02E1
3170 :03C2
3180 :04F1
3190 :0767
3200 :0365
3210 :00ED
3220 :0742
```

```
3230  SET.PALETTE:
3240   restore COLOR.PALETTE
3250   for ENTRY=0 to 15
3260       read PALETTE.COLOR
3270       KOL%( ENTRY )=PALETTE.COLOR
3280   next ENTRY
3290   '
3300  COLOR.PALETTE:
3310   data 1911,1792,1856,85,1904,7
3320   data 80,1285,0,0,785,0
3330   data 0,0,0,785,1074
3340   '
3350   defdbl C: C=1114
3360   poke C,varptr( KOL%( 0 ))
3370  return
3380   '
3390   '------------------------------------
3400  GET.MOUSE:
3410   gemsys( GRAF.MKSTATE )
3420   MX=peek( GINTOUT+2 )
3430   MY=peek( GINTOUT+4 )
3440   NEW.PRESS=peek( GINTOUT+6 )
3450   if OLD.PRESS<>NEW.PRESS then FALL=1 else FALL=0
3460   OLD.PRESS=NEW.PRESS
3470  return
3480   '
3490   '------------------------------------
3500  VRO.COPYFORM:
3510   poke CONTRL,109
3520   poke CONTRL+2,4
3530   poke CONTRL+6,1
3540   poke CONTRL+12,HANDLE
3550   poke CONTRL+14,A1
3560   poke CONTRL+16,A2
3570   poke CONTRL+18,A1
3580   poke CONTRL+20,A2
3590   poke INTIN,3
3600   poke PTSIN,X1
3610   poke PTSIN+2,Y1
3620   poke PTSIN+4,X2
3630   poke PTSIN+6,Y2
3640   poke PTSIN+8,XD1
3650   poke PTSIN+10,YD1
3660   poke PTSIN+12,XD2
3670   poke PTSIN+14,YD2
3680   vdisys( 0 )
3690  return
3700   '
3710   '------------------------------------
3720  HIDE:
3730   poke CONTRL,123
3740   poke CONTRL+2,0
3750   poke CONTRL+6,0
3760   poke CONTRL+12,HANDLE
3770   vdisys( 0 )
3780  return
3790   '
3800   '------------------------------------
3810  SHOW:
3820   poke CONTRL,122
3830   poke CONTRL+2,0
3840   poke CONTRL+6,1
3850   poke CONTRL+12,HANDLE
3860   poke INTIN,1
3870   vdisys( 0 )
3880  return
3890   '
3900   '------------------------------------
3910  ALERTBOX:
3920   ADDRIN=peek( A#+16 )
```

```
3230 :042B
3240 :0789
3250 :0559
3260 :0623
3270 :07B3
3280 :041E
3290 :00F5
3300 :04BC
3310 :0722
3320 :05AA
3330 :0513
3340 :00F1
3350 :04F0
3360 :0766
3370 :036D
3380 :00F5
3390 :0777
3400 :0398
3410 :0718
3420 :0628
3430 :062C
3440 :082E
3450 :0DC5
3460 :0649
3470 :036E
3480 :00F6
3490 :0778
3500 :0496
3510 :0510
3520 :0508
3530 :050A
3540 :06B3
3550 :057C
3560 :0580
3570 :0582
3580 :057D
3590 :0461
3600 :04BB
3610 :051A
3620 :051D
3630 :0521
3640 :0566
3650 :0591
3660 :0594
3670 :0598
3680 :03F4
3690 :0372
3700 :00F1
3710 :0773
3720 :0220
3730 :0510
3740 :0508
3750 :050D
3760 :06B7
3770 :03F4
3780 :0372
3790 :00FA
3800 :0773
3810 :0247
3820 :050F
3830 :0508
3840 :050E
3850 :06B7
3860 :045F
3870 :03F5
3880 :0373
3890 :00FB
3900 :0774
3910 :0368
3920 :05A9
```

continued on next page

```
3930    B#=ADDRIN
3940    poke GINTIN,0
3950    TEXT$=TEXT$+chr$( 0 )+chr$( 0 )
3960    poke B#,varptr( TEXT$ )
3970    gemsys( FORM.ALERT )
3980    CHOICE=peek( GINTOUT )
3990   return
4000   '
4010   '---------------------------------
4020   WARNING:
4030    TEXT$="[0][|This program works best |"
4040    TEXT$=TEXT$+"    in LOW resolution.   |]"
4050    TEXT$=TEXT$+"[ Run | EXIT ]"
4060   return
4070   '
4080   '---------------------------------
4090   ED.BOX:
4100    REPLACE$="       "+chr$( 127 )+"   Antic Towers  "
4110    REPLACE$=REPLACE$+chr$( 127 )+"      "+chr$( 0 )
4120    poke GINTIN+0,peek( SYSTAB+8 )
4130    C#=GINTIN+4: poke GINTIN+2,2
4140    poke C#,varptr( REPLACE$ )
4150    gemsys( WIND.SET )
4160   return
4170   '
4180   '---------------------------------
4190   REVERSE:
4200    poke CONTRL,32
4210    poke CONTRL+2,0
4220    poke CONTRL+6,1
4230    poke CONTRL+12,HANDLE
4240    poke INTIN,R
4250   vdisys( 1 )
4260   return
4270   '
4280   '---------------------------------
4290   POLYLINE:
4300    poke CONTRL,6
4310    poke CONTRL+2,6
4320    poke CONTRL+4,0
4330    poke CONTRL+12,HANDLE
4340    poke PTSIN,0+X
4350    poke PTSIN+2,0+X
4360    poke PTSIN+4,639-X
4370    poke PTSIN+6,0+X
4380    poke PTSIN+8,639-X
4390    poke PTSIN+10,199-X
4400    poke PTSIN+12,0+X
4410    poke PTSIN+14,199-X
4420    poke PTSIN+16,0+X
4430    poke PTSIN+18,0+X
4440    vdisys( 1 )
4450   return
4460   '
4470   '------------------------------------
4480   DISK:
4490    poke CONTRL,11
4500    poke CONTRL+2,2
4510    poke CONTRL+6,0
4520    poke CONTRL+10,9
4530    poke CONTRL+12,2
4540    poke PTSIN,X1
4550    poke PTSIN+2,Y1
4560    poke PTSIN+4,X2
4570    poke PTSIN+6,Y2
4580    vdisys( 0 )
4590   return
4600   '
4610   '---------------------------------
4620   FILCOL:
4630     poke CONTRL,25
4640     poke CONTRL+2,0
4650     poke CONTRL+6,1
4660     poke CONTRL+12,2
4670     poke INTIN,FC
4680     vdisys( 0 )
4690   return
```

3930	:0323
3940	:04A4
3950	:07FA
3960	:076B
3970	:0696
3980	:06DC
3990	:0375
4000	:00EB
4010	:06E6
4020	:0316
4030	:0D60
4040	:0B6A
4050	:07EA
4060	:036A
4070	:00F2
4080	:06C0
4090	:02A7
4100	:0ABF
4110	:0A36
4120	:08F5
4130	:0800
4140	:081A
4150	:05FF
4160	:036B
4170	:00F3
4180	:06EE
4190	:0324
4200	:04D8
4210	:0501
4220	:0507
4230	:06B0
4240	:0479
4250	:03EF
4260	:036C
4270	:00F4
4280	:06EF
4290	:0375
4300	:04AA
4310	:0508
4320	:0505
4330	:06B1
4340	:04E7
4350	:0545
4360	:05BC
4370	:054B
4380	:05C2
4390	:05ED
4400	:0572
4410	:05EA
4420	:0578
4430	:057B
4440	:03F0
4450	:036D
4460	:00F5
4470	:074A
4480	:0235
4490	:04E0
4500	:0505
4510	:0508
4520	:053D
4530	:0539
4540	:04BF
4550	:051E
4560	:0521
4570	:0525
4580	:03F4
4590	:0372
4600	:00F1
4610	:0719
4620	:02BF
4630	:04E1
4640	:0508
4650	:050E
4660	:053D
4670	:04B7
4680	:03F5
4690	:0373

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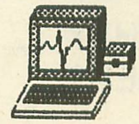
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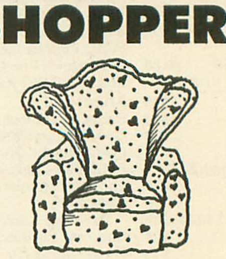
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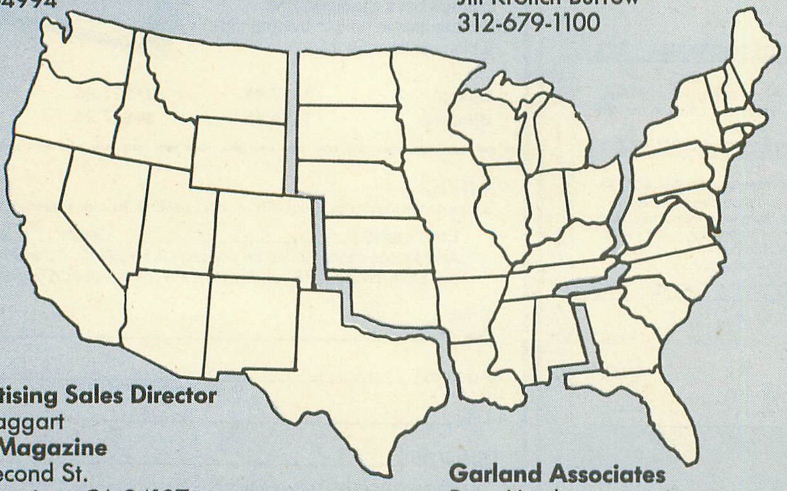
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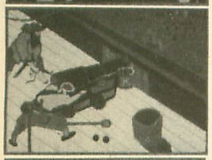
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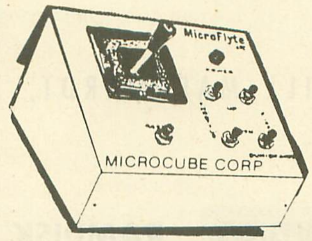
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ST WRITER BASIC EDITING

Bruce Noonan, a physician from Edmonds, Washington suggests this format line when using ST Writer as a BASIC editor:

[CONTROL]-L 1
[CONTROL]-G 10
[CONTROL]-R 160
[CONTROL]-T 0
[CONTROL]-B 0.

Remember to PRINT to a disk file, not SAVE.

Here are three Tech Tips sent in by Neta Fillmore, of Oildale, California. She is a member of the Bakersfield Atari Computer Enthusiasts who originally published them in their newsletter.

NOISY I/O FLAG

If you would like to turn off the sound of data pulses coming out of your video speaker during disk or cassette I/O, type POKE 65,0. Bring it back with POKE 65,1.

BYE BYE REBOOT

Here's a tricky way to rerun an AUTORUN.SYS file without turning off your Atari XL or XE. Press [RESET]. Type in BYE and press [RETURN]. You will see the Self-Test Menu. Press [RESET] again and AUTORUN.SYS will take off.

BINARY LOCATING

Want to find out where a binary program is being loaded? The first six bytes will give you the answer. The following program reads them:

```
10 OPEN #2,4,0,"D:YOURPROG.OBJ"
20 FOR I=1 TO 6:GET #2,A
30 PRINT A:NEXT I:CLOSE #2
```

Ignore the first two values which will be 255. Multiply the fourth value by 256 and add the third byte to the result. You now have the starting address. Repeat the above for values five and six to find the ending address of the binary program.

RAMDISK REVISITED

Rick Detlefsen of the Austin (Texas) Atari Computer Enthusiasts sends in his enhancement of the 800XL 16K RAMdisk Tech Tip from the January 1987 Antic. This patched version shows correctly that you have only 101 free sectors, not 499.

1. Boot with DOS 2.5 to BASIC.
2. POKE 1802,PEEK(1802)+128
3. Press [RESET].
4. POKE 2924,101:POKE 2925,0:POKE 2926,101:POKE 2927,0
5. Go to DOS.
6. Format D8.
7. Return to BASIC.

Don't forget that when you turn off your computer, everything in this pseudo disk drive (D8) will be lost. Copy any files you wish to keep to a real disk before you shut down.

ML DATA LOADER

DATAMAKR.BAS is a short program which converts machine language object files into BASIC DATA statements that can be ENTERed and used in your own BASIC programs.

Just insert the filename of your object code in line 20. Then choose a filename for your DATA statements and type it in at line 15. DATAMAKR will read your object code from the first file, and write BASIC DATA statements to the second.

When RUN, DATAMAKR asks for a starting line number. DATAMAKR will use that line number to create its first DATA statement. Subsequent DATA lines will be numbered in increments of ten. If you prefer to number your programs differently, change the 10 in line 110 to a value of your choosing.

After DATAMAKR has written your file of DATA statements, type NEW and ENTER it into RAM. Remember that you'll probably have to delete the first six items of data, which are file header bytes. You may also find a comma after the last entry. This should be deleted too.

```
10 DIM LINE$(127):TRAP 120
15 OPEN #3,8,0,"D:DATALIST.LST"
20 OPEN #4,4,0,"D:FILENAME.OBJ"
30 ? CHR$(125);"STARTING LINE # = ";
40 INPUT LN
50 LINE$=STR$(LN)
55 LINE$(LEN(LINE$)+1)="DATA "
60 FOR J=1 TO 15
65 GET #4,D
70 LINE$(LEN(LINE$)+1)=STR$(D)
75 LINE$(LEN(LINE$)+1)=","
80 NEXT J:GET #4,D
90 LINE$(LEN(LINE$)+1)=STR$(D)
100 PRINT #3;LINE$:LINE$=" "
110 LN=LN+10:GOTO 50
120 PRINT #3;LINE$:CLOSE #3:CLOSE #4
```

If you have a Tech Tip that you would like to share with other readers, send it along to Antic Tech Tips, 544 Second Street, San Francisco, CA 94107. You might get your name in print. We always welcome very short programs that demonstrate the Atari's powers, simple hardware modifications, or useful macros for popular software.

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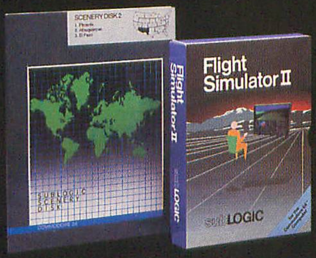
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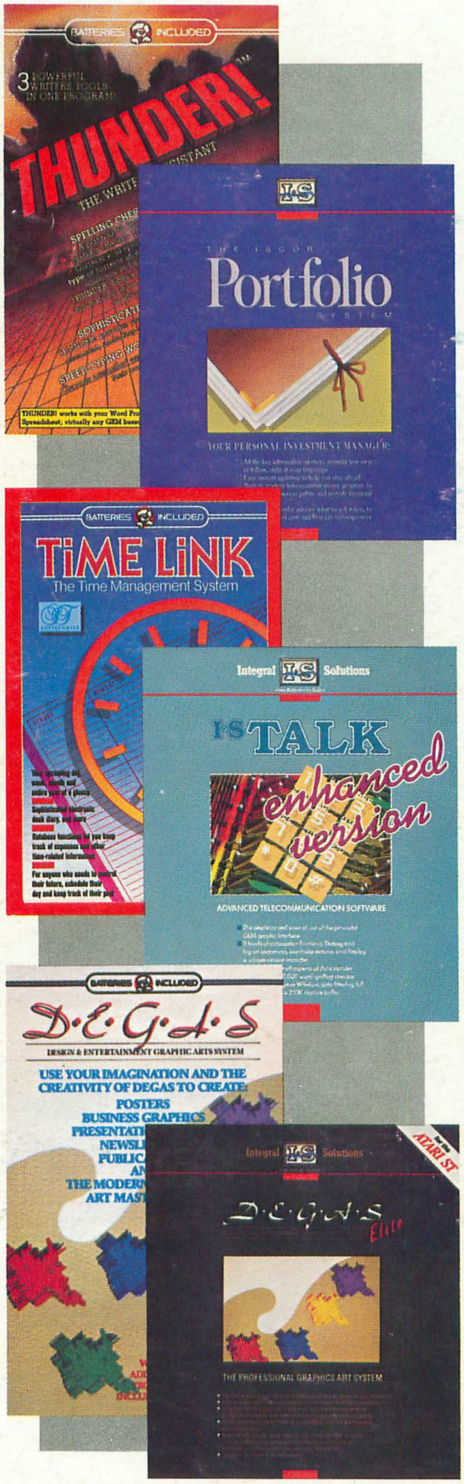
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